Regional Study on Agricultural Trade Facilitation/Export Promotion in SSA

Ghana Horticulture Sector Development Study

including

Agricultural Sub-Sector Investment Program Restructuring

Prepared for

ESSD
Department of the
World Bank

Prepared by

Jean-Michel Voisard
voisard@agrobiz.net

Peter Jaeger
Accord Associates
jaeger@accordassoc.biz

2003

Contents

PREFACE i
EXECUTIVE SUMMARY i
ACKNOWLEDGMENTS i
MAPS OF GHANA ii
ACRONYMS AND ABBREVIATIONS iii
1. INTRODUCTION 1
2. SECTOR PROFILE & PERFORMANCE 2
2.1 The Horticultural Export Sub-Sector 2
2.1.1 Sub-Sector Profile 2
2.1.2 Recent Performance of the Horticultural Export Industry 7
2.2 Product Profiles 10
2.2.1 Pineapples 10
2.2.2 Papaya 12
2.2.3 Mango 14
2.2.4 Vegetables 16
2.3 Institutional Environment 18
2.4 Implementation of Recommendations 20
3. OPPORTUNITIES & CHALLENGES 25
3.1 Market Opportunities 25
3.1.1 Immediate opportunities 25
3.1.2 Mid term opportunities: 27
3.1.3 Long term opportunities: 29
3.1.4 Bio-certification and Fair trade: 30
3.2 Challenges 30
3.2.1 Quality Issues 30
3.2.2 Competition issues: 35
4. INDUSTRY BENCHMARKING AND KEY CONSTRAINTS 36
Benchmarking 36
4.1 Cost structure 36
4.1.1 Direct cost benchmarks 37
4.1.2 Indirect costs 42
4.2 Key productivity factors 44
4.3 Benchmarking by individual product 48
4.3.1 PINEAPPLE 49
4.3.2 PAPAYA 50
4.3.3 MANGO 51
4.3.4 CHILLIES 53
5. STRATEGY 54

5.1 Strategic perspective 54
5.1.1 Ghana's strategic positioning 54
5.1.2 Strengths, Weaknesses, Opportunities and Threats 54
5.1.3 Challenges 56
5.1.4 Key strategic drivers 58
5.2 AgSSIP intervention 61
5.2.1 Priorities 61
5.2.2 Two year action plan 61
Component 1 - Improved planting material: 70
Component 2 - Food safety and quality management: 72
Component 3 - Innovative applied research and development: 74
Component 4 - Pre-post harvest management: 77
Component 5 - Cluster building : 80
Component 6 - Farmer ownership model : 82
Component 7 - Support to implementation and strategic monitoring: 84
5.3 Projected Impact 85
Increased sales: 87
Direct investments: 87
5.4 Phase 2 perspectives 87
ANNEXES 89
Annex 1 Activity: Renovation of Tema port - Shed 9 89
Annex 2 Activity: Introduction in Ghana of the MD2 pineapple cultivar 92
Annex 3 Policy, Regulatory and Institutional Environment 96
Annex 4 List of Interviewees 100
Annex 5 Literature 106

PREFACE

Considering that trade is essential for spurring growth and that growth is a critical part of poverty reduction, the continuous decline of Africa in global trade is a major source of concern. Over the last three decades, Africa's share of the world market has been divided by three (exports from sub-Saharan Africa accounted for 3.1 percent of world exports in 1955, but by 1990 its share had fallen to 1.2 percent--implying annual trade losses of $65 billion in current prices). This situation stems from the fact that most African countries remained heavily dependent on agricultural export revenues from a small number of traditional, low-value, bulky commodities (such as coffee, cocoa, or cotton), for which the terms of trade have, over the past three decades, been continuously declining. In contrast, remarkable successes have been experienced by some African countries who have diversified their export base into non-traditional agricultural products with market growth opportunities and higher value per weight, such as cut flowers and plant cutting, fresh fruits and vegetables, as well as processed products like canned pineapple. Thus, countries such as Kenya, South Africa, Côte d'Ivoire, and Zimbabwe have seen over time a sustained growth in their export earnings from non-traditional agricultural products and have even in some cases emerged as market leaders.

The Bank and other development institutions have, over the years, funded numerous projects and policy interventions, and have provided technical assistance to support export growth, export diversification and growth of value added in the agricultural sector. Following the period of adjustment of the 1970s and 1980s, a number of projects have been launched and implemented in the 1990s with the objective of increasing exports of high-value, non-traditional agricultural products. Some of these projects have yielded remarkable results for products such as pineapple, cut flowers, papaya, and mango. As most countries are moving towards "second-generation" reforms and more ambitious poverty reduction strategies, growth remains a top priority and the development of agricultural exports has been identified as an area of priority assistance for the Bank in these countries. This broader framework of assistance is all the more relevant to Africa where 70% of the population live in rural areas and where so many African economies depend on agricultural production and exports.

In order to help capitalize country experiences in the region, scale up interventions in this field, and assist client countries in articulating sound and effective strategies to meet the challenge of increasing exports of higher value agricultural commodities, the Environmentally and Socially Sustainable Development Department of the World Bank Africa Region (ESSD-Africa) has launched a comprehensive study on "Agricultural Trade Facilitation and Non-Traditional Agricultural Export Development in Sub-Saharan Africa."

Among non-traditional agricultural exports, fresh fruits, vegetables and flowers - often referred to as horticultural products[1] - deserve special attention because of their characteristics as perishable products and because of the substantial development that has already taken place in this area in several countries of the region. They offer interesting prospects for further export growth in SSA due to the relative proximity of the important consumer markets of Europe and the Middle-East.

[1] Horticulture encompasses what is also referred to in the literature as High Value Fresh Products (HVFP), or Fresh Horticultural and Floricultural Products (FHFP).

The definition of horticulture adopted in the study refers to the production and marketing of crops and products with a relatively high value per unit and/or high perishable character, produced and processed under intensive use of land, labour, knowledge, financial means and other inputs. They are generally - but not exclusively - produced for selected export markets. These definitions are, however, not restrictive and the range of non-traditional products under review may vary depending on the specific country case-studies.

The objectives of the Agricultural Trade Facilitation Study are essentially to:

- Provide a global perspective as well as an in-depth analysis of the potential that trade in non-traditional products, such as horticulture, represents for SSA countries in terms of opportunities for accelerated growth and poverty reduction.

- Outline the conditions for improved competitiveness in these markets (reduction of transaction costs, compliance with food standards and regulations, etc.).

Make recommendations on the type of public support and development assistance that is needed to facilitate private sector investment and to enhance growth in the field of horticulture.

The study is organized in two parts. The first part includes regional or sector-wide reports: (i) Lessons and operational recommendations from successful experiences in horticulture development in SSA; and (ii) Market prospects for horticultural products in Europe. The second part comprises country-specific case studies. The case studies that have been undertaken so far (Ghana and Uganda) provide a review of the respective horticultural sectors and analyze the current constraints facing private sector operators in these markets, as well as the type of programs that should be undertaken to further develop these sectors. The present report analyzes the development of the horticulture sector in Ghana.

EXECUTIVE SUMMARY

1. The horticultural export sub-sector of Ghana has progressed in a number of areas over the past five years. Total exports of horticultural products have increased from 33 000 t (1997) valued at US $22.9mn fob to 70 000 t (2002) valued at US $33.6mn. The discrepancy in growth rates of the quantity and value of exports is a consequence of the expansion of the lower value sea-freighted pineapples and asian vegetables as well as an indication of the some decline in European market value of produce.
2. Progress has not been even and is restricted to a few products. There are success stories in the development of:
    - sea freighted pineapples from 15 000 t in 1997 to 40 000 t in 2002
    - sales to Europe of Asian vegetables (thereby increasing the unit value of air freighted exports)
    - fresh produce processing (fresh-cut fruits and juicing)
    - fresh produce sales in local and regional markets.
3. To date the private sector has driven the development, with most of the exports led by a small number of entrepreneurs. There is now a clear role for government to support and co-ordinate investment in the industry.
4. There has been a notable lack of progress both in the mango and papaya exports, despite a capacity for production and good growth in the market, and in the failure to develop a portfolio of other export opportunities.
5. Further, the positioning of Ghanaian products in the European markets is weak. The competitive strategy is dictated by others in the market, and success to-date is dependent on low comparative costs.
6. Competitive pressures in the global fresh produce market are growing inexorably from the innovative abilities of other suppliers. The marketing difficulties are proliferating under increasing regulations from import market governments and buyers. In these circumstances only the most competitive will survive.
7. There is now a stark choice facing those with influence in the sub-sector: continue in the present mode, and horticultural exports will fade, wasting the progress of 15 years, or address the issues and set Ghanaian exports in a competitive position to move up the value chain.
8. Success in this industry will be driven by the innovative entrepreneurs. It is this group more than any other who will take the industry forward. They must be supported by the public sector through appropriate investments in infrastructure.
9. In the medium term, the industry needs to build up a middle management capacity, able to manage the requirements of an increasingly demanding import market. For example, a high level of technical competence is needed in a farm manager if the enterprise is to be able to export to the European supermarkets.
10. In the long term, the sustainable success will depend on the ability of the industry to innovate and adapt and it is important that a diversified production base is maintained through the small farmers and out growers. Appropriate attention to this foundation of this industry will be needed or the supply base will consolidate rapidly.

11. Action is needed throughout the industry so that all the service providers with an interest in the success of horticultural exports can take responsibility for their contribution. The activities of the Federation of Associations of Ghanaian Exporters in this area should be extended.
12. No one constraint holds back the development of value in this industry. The challenges are interrelated and a co-ordinated approach of enhancing human capital must be accompanied by focussed investment in infrastructure.
13. The AgSSIP programme is ideal to offer the financial scale, forward vision and broad perspective that are needed now to move this industry ahead. The present report offers a US $9.5mn plan here for such an investment programme. Further detail must be added but the strategic outline is clear.
14. It is estimated that such an investment could yield an increase in sales of some €83.4mn. This report does not include a full economic analysis, incorporating interpretations of the full socio-economic impact and realistic import requirements of the programme, but the consultants recommend that the programme includes such an investigation.
15. The consultants believe that the need for active government support and investment is pressing: the competition will not wait and the industry does not need more reviews and recommendations before the programme is initiated.

ACKNOWLEDGMENTS

The authors compiled the present report following a two-week mission to Ghana in June 2003. The mission was initiated and funded by the World Bank's Environmental, Rural, and Socially Sustainable Development (ESSD) Department of the Africa Region, and was carried out with the guidance and support of the Policy Planning Monitoring and Evaluation Directorate (PPMED) of the Ministry of Agriculture in Ghana. The strong support of the Honorable Major Courage Quashiga, Minister of Food and Agriculture and his staff, particularly Malam Seidu and Adelaide Siriboe and the counterparts from PPMED is gratefully acknowledged.

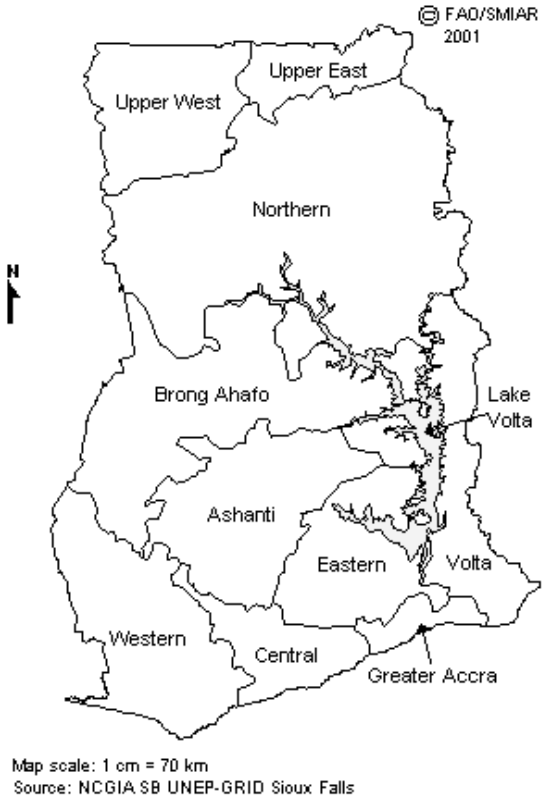
The report was prepared by Jean-Michel Voisard and Peter Jaeger, under the guidance of the task team leader, Patrick Labaste (World Bank, ESSD Africa), assisted by Patience Mensah, of the World Bank Office in Ghana. The report also benefited from very useful comments from Solomon Bekure (World Bank, Consultant). Morgane Danielou and Joseph Ellong (World Bank, ESSD Africa) provided logistical and editorial assistance."

The authors are thankful for the kind hospitality, the generous amount of time and the open welcome that was offered by all. The report could not have been completed without the contributions and insights from a cross section of the players in the Ghana export horticulture sector. A list of people who were interviewed can be found in annex 4[2].

[2] Annex 4 List of Interviewees, p100

MAPS OF GHANA

Map 1 Ghana - Administrative Divisions



Source: http://www.fao.org/giews/french/basedocs/gha/ghaadm1f.stm

Map2 Ghana – Relief and Major Towns and Cities

Source: http://www.ghanaweb.biz/GHP/img/pics/12307026.gif

ACRONYMS AND ABBREVIATIONS

ADB	Agricultural Development Bank
AGOA	African Growth and Opportunity Act
AgSSIP	Agricultural Services Sub-Sector Investment Programme
COLEACP	Comité pour Liaison Europe ACP
EC	European Commission
EDIF	Export Development & Investment Fund
ESSD	Environmentally & Socially Sustainable Development Network
EU	European Union
FAGE	Federation of Associations of Ghanaian Exporters
GEPC	Ghana Export Promotion Council
GIPC	Ghana Investment Promotion Centre
GSB	Ghana Standards Board
GTZ	Gesellschaft für Technische Zusammenarbeit – German Government agency for international co-operation
GYEA	Ghana Yam Exporters Association
Ha	Hectares
HAG	Horticultural Association of Ghana
JITAP	Joint Integrated Technical Assistance Programme to Selected Least Developed and Other African Countries
Kg	Kilogram
Km	Kilometre
Mn	Million
MOFA	Ministry of Food and Agriculture
MOTI	Ministry of Trade and Industry
NGO	Non-Governmental Organisation
NTAE	Non-Traditional Agricultural Exports
OCAB	Organisation Commune Ananas Banane
PIP	Pesticides Initiative Programme

SPEG	Sea-Freight Pineapple Exporters of Ghana
SSA	Sub-Saharan Africa
T	Tonnes
TIRP	Trade and Investment Reform Programme
UBA	Union Bananière Africain
USAID	United States Agency for International Development
VEPEAG	Vegetable Producers and Exporters Association of Ghana

1. INTRODUCTION

The export of non-traditional agricultural products from Africa contributes to economic growth and to poverty reduction. To these ends, the World Bank assists the countries of sub-Saharan Africa (SSA) with the design of strategies for agricultural diversification and for strengthening the competitiveness of agricultural exports. The Environmentally & Socially Sustainable Development Network (ESSD) of the World Bank is now conducting a regional study of the horticulture sector in selected countries (Uganda, Senegal, Ghana, Mozambique, Ethiopia and Tanzania) to evaluate progress and review experience.

The present report reviews the recent history and current situation in fruit and vegetable exports from Ghana, and then assesses the future prospects for the sub-sector. The overall objective is to provide the client and the Bank with the technical, economic and strategic analysis necessary to help Ghanaian stakeholders and policy-makers articulate a strategy for the further development of the horticultural export industry.

In parallel, the Government of Ghana is considering restructuring the Agricultural Services Sub-Sector Investment Programme (AgSSIP), funded by the International Development Agency (IDA) of the World Bank Group. The Government wishes to restructure the programme and include new activities such as a component to support agribusiness. The current study, therefore, also provides an input to plans for assistance by the World Bank through the AgSSIP.

The authors of the report, Jean-Michel Voisard and Peter Jaeger, visited Ghana for two weeks in June 2003. They interviewed players throughout the horticulture sub-sector (government departments and agencies, growers, input suppliers, exporters, processors, shipping lines, port authorities, financial institutions and donor agencies), and they reviewed an assortment of recent reports that collectively analyse the background, constraints and achievements of the sub-sector and also recommend interventions.

This combination of interview and literature review gives an overview of the changes taking place in the Ghanaian horticulture sub-sector. Several reports[3] describe the background and history to horticulture in Ghana and there is no need to repeat this through reviewing the detail again here. In particular, the report from Accord Associates[4] provides a thorough analysis of the situation up to 1998 and makes a number of clear recommendations for interventions to assist the sector.

The present study examines the horticultural sub-sector in Ghana, reports on the developments in the European markets and compares the performance of competitors. Proposals are also made for activities that would support the Ghanaian industry. The consultants believe that there are straightforward immediate interventions that are long overdue; and hope that this report will not simply add to the growing corpus of consultants' writings, but provoke some real supportive actions.

---

[3] See Annex 4 for a listing of relevant reports

[4] *The Future for the Ghanaian Horticultural Export Industry* prepared for the Agricultural Diversification Project by Accord Associates July 1998 dixie@accordassoc.biz

2. SECTOR PROFILE & PERFORMANCE

2.1 The Horticultural Export Sub-Sector

The following chapter outlines the Ghanaian horticultural export industry in 2003. The current situation in Ghana is placed in the context of its market performance over the past 5 years.

2.1.1 Sub-Sector Profile

GEPC statistics show that the exports of horticultural products from Ghana were valued at $33.6mn (FOB) in 2002 up from US $ 22.9mn in 1997.

Fruits

Table 2-1 overleaf summarises the current fruit export situation. The key points in the industry are:

- About 70 000 tonnes of fruits were exported from Ghana in 2002. The principal fruit exports are:-

	tonnes
Pineapples	46 000
Citrus	16 500
Bananas	3 230
Papaya	1 500

- Pineapples, bananas and citrus are grown in the south east corner of Ghana within two to three hours of Accra. Citrus, which has a longer history of cultivation in Ghana, is grown more extensively.
- Only five growers produce over 2 500 tonnes of pineapples. There are a very large number of small growers. Farmapine, one of the two largest exporters, is owned by co-operatives of small growers.
- All pineapple for export is the Smooth Cayenne variety. The Sugar Loaf variety, which does not withstand transport, is also grown and sold to the local market.
- Bananas are cultivated quite widely in Ghana, but there is only one export-oriented grower.
- Papaya cultivation is based on Solo varieties.
- Mangoes and passion fruit are also grown for export, but quantities are minor.
- SPEG not only organises sea freight shipments but also acts as an association for the pineapple growers and exporters. HAG covers activities in the other fruits. HAG is due to merge with SPEG.
- Pineapples, bananas and papaya are exported to Europe. Citrus is exported to Togo.
- Most pineapples and all bananas are exported by sea freight. The balance of the pineapples and the papaya are sent by air.

- Sea freighting of pineapples based on part chartering a vessels from UBA. A minimum of 230 pallets is required to induce the vessel to call. Shipments reach 1 200 pallets per week during the peak season.
- There is a good local demand for all these fruits. However, the market is low priced and may not cover production costs during the peak harvest season.
- Local processing of the fruits includes the preparation of fresh cut pineapples at Blue Sky Products, Tonggu Farms and First Catering as well as juicing at Blue Sky and Athena for export and a number of local factories for domestic consumption.

Table 2-1 Summary of the Fruit Export Sector

Crop	Est 2002 Prod (tonnes)	2002 Exports (tonnes)	FoB Value[5] (US$)	C&F Value (US$)	No of Exporters	Top 5 Exporters (% share)	Principal Destination	Local Processing	Production Trend and Prospects
Pineapple	80 000	Sea 40 000 Air 6 000 Proc 15 000	13 500 000 2 020 000		56	Jei River Farmapine Koranco Milani Prudent (57%)	Germany Italy BeneLux	Fresh cut Juice Canning	Continued growth anticipated but Costa Rica may take market share
Citrus (oranges/ lemon/lime)	330 000	16 500	868 000		5	Winaco J-Spedi (100%)	Togo C. d'Ivoire	Juice	Traditional crop now finding regional markets
Papaya	5 000	1 500	865 000		28	Jei River Denlassey Paradise Winaco Dansak (78%)	Germany Togo UK	Slicing for street sales	Production stagnant and likely to decline. Need Golden varieties to replace existing Solo types.
Banana	10 000	3 230	3 250 000		1	Volta River (100%)	Netherlands UK	No	Production destroyed by storm 2002. To restart as organic. Exports limited by EU banana quota
Mango	4 000	126	70 000		33	Tacks Farms J Lawrence Sefah Mission Dhillon (47%)	Belgium UK South Africa	Fresh cut	Dramatic decline in exports in last 2 years. Possibly sales to Blue Sky? Coastal area not well suited to export quality. Northern areas would be better and currently under trials by Wienco.
Passion Fruit	5	2	2 700		2	Milani (100%)	Switzerland Belgium	Juice	Milani abandoning trials. Other trials with Israeli varieties yet to yield.

[5] GEPC valuation

Vegetables

Table 2-2 overleaf summarises the current vegetable export situation. The key points in the industry are:-

- Over 20 000 tonnes of vegetable were exported from Ghana in 2002.
- Yams dominate the export of vegetables. Chillies and other Asian vegetables are also significant.
- Asian vegetables include okra, tinda, eggplants, guar beans, yard long beans and gourds and marrows.
- All vegetables for exports are grown in the south east corner of Ghana.
- Yam exports are managed by a very large number of small traders. The top five exporters account for less than 30% of the trade.
- Yams were reclassified from non-traditional export into the traditional category. Accordingly the level of corporation tax on companies involved in yam exports was raised from 8% to 32-35%.
- VEPEAG is the trade association for the vegetable growers and exporters, while the yam industry has its own association
- The major exporters of chillies and Asian vegetable exports to Europe are often Asian owned. At least one is directly linked to a UK importer/wholesaler.
- The larger exporters all have their own production but supplement this with purchases from outgrowers. We estimate that at least 40% of exported vegetables derive from independent smallholder production.
- Mostly, the smallholders engage in low input / low yield farming.
- VEPEAG, with support from Care International, provide extension services to this sector.
- Some of the larger grower exporters have suitable packhouses but none is known to have achieved EUREP GAP.
- Vegetables are packed straight into export cartons at the farms either in the exporter's packhouse or at the smallholder.
- The cartons used for export are of indifferent quality and do little to promote the produce.
- Produce is collected by pick-up and may be transported over poor roads for some distance until the relatively smooth tarmac is reached. All production is located within three hours of Kotoka Airport.
- At the airport produce is often resorted and repacked before the pallets are stacked. The repacking may be necessary if boxes have been damaged in transit or packed without weighing.
- There are appropriate facilities at the airport for repacking the vegetables but neither is incorporated into the cargo village and so both are unsuitable for palletising the produce. In consequence the exports are repacked on the ground in the open air.

Table 2-2 Summary of Vegetable Exports from Ghana

Crop	Est 2002 Prod (tonnes)	2002 Exports (tonnes)	FoB Value (US$)	C&F Value (US$)	No of Exporters	Top 5 Exporters (% share)	Main Dest	Production Trend and Prospects
Chillies	270 000	4 700	1 780 000		84	Winaco J-Spedi Indgha Dhillon Besch Ent (72%)	UK Togo	Production largely based on Sri Lankan variety 'MI 2' imported some years ago and Legon 18 grown from saved seed. Yields reportedly declining. Low value chilli for market sales in UK and regionally. Some trials with other varieties.
Eggplants	6 400	1 500	455 000		118	Winaco Gannat Param J-Spedi Dhillon (63%)	UK Togo Netherlands	Includes purple and white aubergines as well as local types 'garden eggs' and baby aubergines 'Ravaya'. Exports mainly garden eggs and ravaya. The latter is present in supermarkets in UK from Ghanaian producer EAL.
Okra	100 000	65	21 200		54	Gannat Param Inbelivor Nyamekye Dhillon (42%)	UK Netherlands Italy	Difficulties with growing suitable varieties for export need to be overcome. The African type is mucilaginous whereas a drier type is preferred by the Asian communities in Europe.
Other Veg (i.e. Asian Veg)	3 000	2 100			40-50	Indgha Dhillon Besch Ent Param Sefah (48%)	UK C d'Ivoire	Covers a range of different vegetables – see above. Production increasing. Few attempts to add value – e.g. better packaging.
Sweet Potato (Ipomea sp)	50	21	22 780		1	Winaco (100%)	Togo	Ongoing trials by VEPEAG may lead to this developing as an export crop
Yams	3 900 000	13 000	8 250 000		130	Indgha Agritility Ayin Ebeser Alfus K Last (28%)	UK USA Netherlands C d'Ivoire	Mostly an occasional uncontrolled trade which leads to quantities arriving simultaneously, overloading the market. Ghana considered a high quality origin. Many yam traders involved in general import-export.

Flowers

There is only one exporter of flowers from Ghana – Media Horticulture, a division of Ghana Fresh Produce Ltd. With 200ha of lands belonging to the Parks and gardens department near Nsawam, and finance from Zimbabwean investors, COMAFIN and the Agricultural Development Bank the company invested in 2.5ha of greenhouse, 2ha of shade netting and 15ha of open field production. After a number of failures the company is now having some success shipping Celosia, Heliconia, Bamboo and reeds to the Dutch flower auctions. Exports amounted to 65 tonnes in 2001 falling to12.5t in 2002.

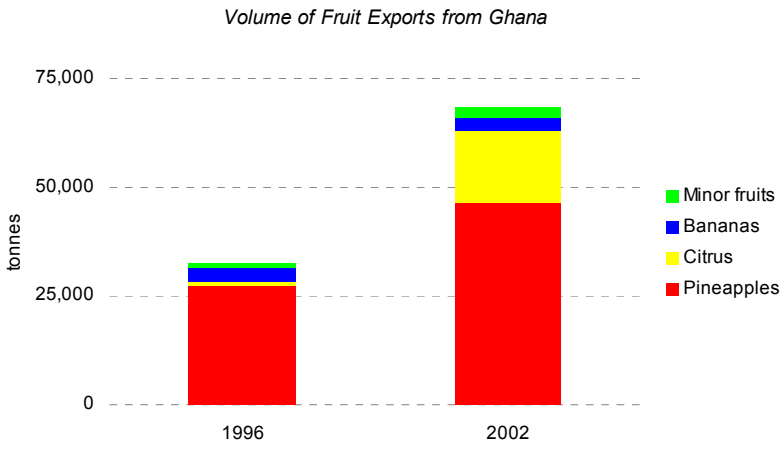
Ghana Fresh Produce is also the owner of the PACH cold store at Kotoka Airport. The group is threatened with foreclosure and the future of the flower exporting business is uncertain. An Israeli enterprise Hovev is supporting the marketing of the flowers.

2.1.2 Recent Performance of the Horticultural Export Industry

Figure 2-1

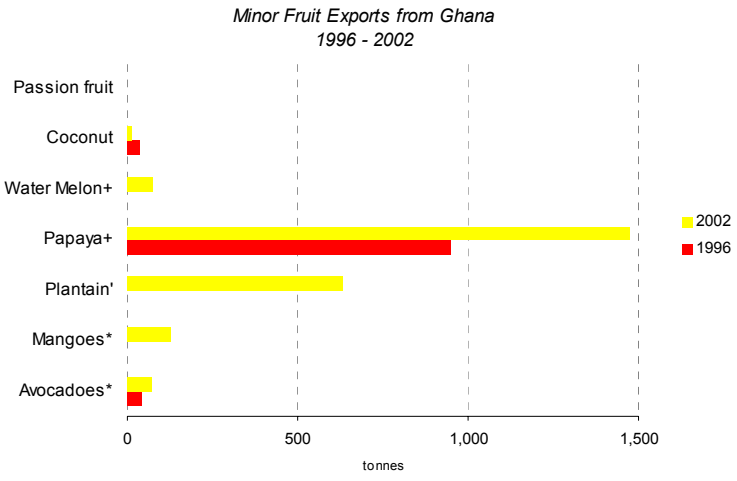
Horticultural exports from Ghana have grown over the past five years from 33 000 tonnes to 70 000 tonnes. Figure 2-1 shows that the expansion derives from the growth of exports of pineapples and of citrus. These two are the basis of Ghana's fruit exports.

A number of other fruits are also exported but, as shown in Figure 2-2, there has been little development in these minor fruits in recent years



Source : GEPC Statistics

Figure 2-2

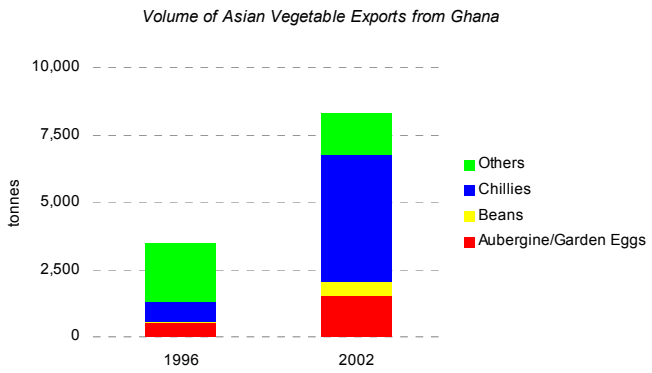


Source: GEPC Statistics

Note that in the period covered by these statistics at least three cold stores have been built for horticultural produce. Crucially, however, the port facilities at Tema have not been upgraded and nor has the airport cargo handling significantly improved. It is must be understood that there is no point in a grower or exporter developing improved post harvest handling unless the chain to the market can maintain that level of handling.

Figure 2-3

As regards vegetable exports, recent developments, not including yams, are shown in Figure 2-3. Vegetable exports from Ghana have grown from 3 700 tonnes to 8 400 tonnes over the past five years. The expansion has come from chillies and varieties of aubergine. In the same period yam exports have grown from 7 000 tonnes to 13 000 tonnes.



Source: GEPC Statistics

The principal developments then in Ghanaian horticultural exports since 1997 are: seen in the expansion of exports in:

- Pineapple
- Citrus
- Yam
- Chillies
- Aubergines and Garden Eggs

To achieve this growth there has been a radical alteration in the logistics with a major move to sea freighting of the pineapples:

Pineapples (tonnes)	1997	2002
- Air	12 000	6 000
- Sea	15 000	40 000

This move has been achieved by linking the exporters under the umbrella of SPEG and thereby guaranteeing sufficient weekly volume to induce a vessel to call at the port of Tema to load one or more holds. The volume is now sufficient to ensure that tow vessels per week visit, the one discharging at the Mediterranean ports the other at North European ports. As a consequence airfreight space has been freed up for higher value produce.

The move to sea freighting has been achieved without an appreciable development of infra structure. The main export shed is unchanged and still inadequately ventilated. There have been developments of cooling facilities and cold stores but they are scarcely used while the cold chain remains incomplete. Further the same shipping line has a monopoly on the exports and there is no incentive to negotiate on prices. Refrigerated container shipping remains an option for competing, but is more expensive and involves a longer journey time.

Further developments are seen in the markets: since 1997 yam exports to the US have increased, and citrus and chilli exports within the West African region have expanded.

Overall, there is an increased awareness of quality issues, and some steps are being taken towards achieving the demands of the EU market. Some of the major pineapple exporters have made steps towards the EUREP GAP certification and the COLEACP pesticide initiative is actively promoting an understanding of the new residue regime. Nevertheless only a handful of exporters come close to meeting the EU supermarket requirements for fresh produce: Ghanaian pineapples are present in the German supermarkets for example, while in the UK supermarkets EAL supplies ravaya and Blue Sky sell fresh cut pineapples and juices.

The general awareness of quality issues must now be translated into meaningful action. This will inevitably be difficult in an industry where small farmers are responsible for a significant proportion of the output. This is both a strength and a weakness: the diversity is important for the longer term sustainability but the near term inability to intensify production and meet the demands of the import market are a hindrance to the industry integrating into the value chain.

Among the major players, there have been some changes with new companies gaining strength and the appearance of small farmer owned Farmapine as a leading pineapple exporter. There have been substantial investments made in production by for example Tonggu farms in Volta Region and Wienco in Northern Region but there have also been less successful investments by others notably in cold stores and pack sheds. While these have been disastrous for the individuals concerned who now find themselves indebted, the facilities represent an important asset to the industry that must be brought into use.

Perhaps the most far reaching development in the industry is the current appearance of Compagnie Fuitière in the market for investing in farms. The stimulus and leadership that this could provide to the industry may well be beneficial but it remains to be seen how the organisation integrates itself in the industry.

2.2 Product Profiles

2.2.1 Pineapples

Pineapple exports lead the horticultural export sector in Ghana. In 2002 some 46 000 tonnes of pineapples were exported and a further 15 000 tonnes processed from a total annual production estimated at 80 000 tonnes.

PRODUCTION ISSUES

Varieties: The dominant variety planted in Ghana is the smooth cayenne. There remain plantings of the traditional Sugar Loaf. There have been some trial plantings of the MD2 type, bred in Hawaii and exploited by Del Monte from Costa Rica, but this probably amounts to no more than 10 ha in view of the cost of suckers.

Age: Commercial cultivation of pineapple for export is a relatively recent development in Ghana expanding since the early 1980s. Major expansion of production followed the introduction of sea-freighting in the mid-1990s.

Production areas: Pineapples cultivation is mostly located to the west and north west of Accra, within 75km of the capital.

Key Players: According to the SPEG there were 56 exporters of pineapples in 2002 of whom 10 exported over 1 000 tonnes. Two producer/exporters, Jei river and Farmapine, lead the rankings by some margin.

Seasonal Production: Pineapples are harvested throughout the year, but the mid year rainy season is a poor time for fruit quality and planned production is usually lowered at this time with a slackening of exports from June to September.

Post-Harvest & Export Logistics: Pre-cooling and cold storage facilities are available, but these are largely unused as there is no integrated cold chain. Mostly the pineapples are held at ambient temperatures for both air and sea-freight. Those fruits exported by sea cool in the hold of the reefer vessel or container once loaded. The export shed at Tema port, namely Shed 9, has no cooling facilities, despite various recommendations, and is poorly ventilated. This latter difficulty causes the temperature indoors to rise at least 5^{o} C above the outside temperature. To avoid storage in these conditions, harvesting and export packaging is necessarily carried out just in time for the loading of the vessel, which may compromise quality.

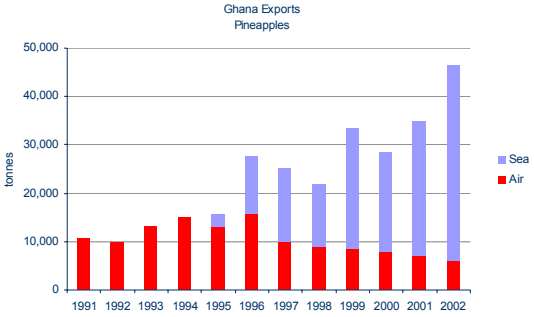
Comments:

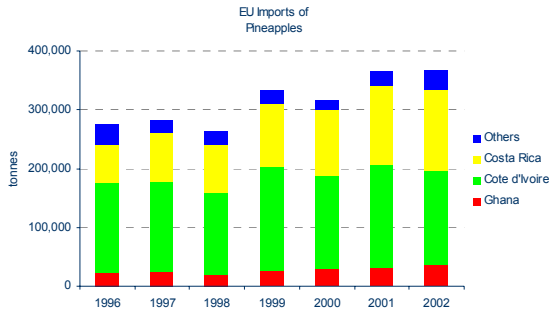
- The industry in Ghana is threatened by the increasing presence of the MD2 variety in the EU markets and the retailer demand for this type. Local demand and processing may continue to accept the smooth cayenne pineapples but the exporters are facing increasing demand to supply the MD2. Switching production is but part of the problem as a significant upgrading of the post-harvest handling and logistics will be mandatory.
- Given the cost of switching production to MD2, the smallholder base is now under threat as the current costs are prohibitive.
- The export market for Ghanaian pineapples is quite narrow.
- Some farms are approaching EUREP-GAP certification.

MARKETING

Exports

- Exports of pineapples have grown well since the late 1990s.
- Principal destinations are Germany, Italy, and Belgium/Netherlands.
- Sea freighting has allowed exports to expand beyond the limited air cargo capacity and freed air cargo for higher value products.



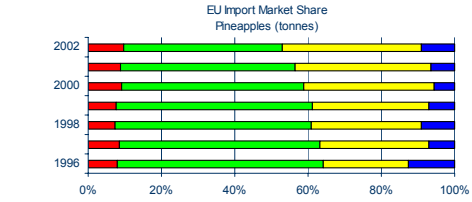


EU Imports

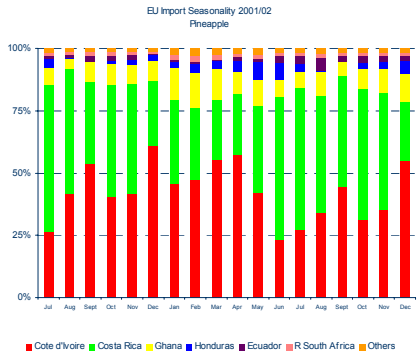
- Continued growth in EU pineapple imports - 6% per year.
- Two suppliers dominate the EU market for pineapples.
- Growth in imports principally fuelled by Costa Rica sending the MD2 type.
- Ghana occupies the third rank in pineapple suppliers but has yet to become a major force.

EU Market Share

- Costa Rica increasing its market share at the expense of Côte d'Ivoire as the MD2 becomes more popular, replacing the smooth Cayenne type.
- Share of 'Others' increasing also, as Ecuador and Honduras expand production of MD2.
- Ghana holding its market share quite stable positioned at the cheaper end of the market.



	1996	1997	1998	1999	2000	2001	2002
Others	34,388	19,848	23,624	23,184	17,856	23,734	34,026
Costa Rica	64,314	83,401	79,022	106,418	112,931	135,574	139,129
Cote d'Ivoire	153,947	154,296	141,572	177,896	157,696	173,431	159,308
Ghana	22,191	23,912	18,969	25,660	29,321	32,591	36,143



EU Import Seasonality

- West African output declines in the summer months during the rainy season.
- Imports to the EU at Christmas time significantly greater. West Africa can still compete at this time while MD2 supplies remain limited. This opportunity will decline.

Comments:

- MD2 is gaining market share in the EU. Discussions with importers indicate that it is increasingly difficult to sell Smooth Cayenne.
- The position of the Ghanaian pineapple exports looks increasingly fragile in this market. Although market share has not been significantly eroded to date, while the Ghanaian product occupies a low price niche, the future for expansion is bleak.

2.2.2 Papaya

Papaya exports grew strongly during the late 1990s and Ghana maintained second place in the ranks of EU suppliers. However, while the EU imports have continued to grow, Ghanaian exports reached a plateau in 1999 at around 1,800 tonnes.

Varieties: Local varieties have been cultivated for a long time in Ghana. The Hawaian solo types were introduced in the early 1990s and the export crop is built on this type. More recently, the golden variety developed in Brazil has become popular in the EU market, not least because it is more resilient to post-harvest handling and can tolerate sea-freighting. Ghanaian production must switch to this type.

Production Areas: The export crop is cultivated in the south eastern corner of Ghana in Central, Eastern, Greater Accra and Volta Regions.

Key Players: There are few major papaya producers. Six exporters send over 100 tonnes per year.

Seasonal Production: Papaya can be harvested throughout the year.

Post-Harvest Handling & Transport: Papaya exported from Ghana is sent exclusively by air. The fruit is fragile and easily damaged and does not have a long shelf life, particularly in the solo types. The Brazilian product is sea-freighted at much lower cost and this logistical development has helped the market expand by providing reasonably priced fruits. In some sectors of the market there is a niche for tree ripened fruit shipped by air but this is a comparatively small sector.

The ability to sea-freight will require first class handling of the fruit, with an uninterrupted cold chain from the packhouse onwards. The infrastructure for this is not available in Ghana at present.

Comments:

- The export of papaya from Ghana has failed to capitalise on the dramatic expansion of demand in Europe. There are various reasons behind this but Ghanaian exporters must now look to makeup the lost ground. In order to achieve thisa move to the golden variety is necessary with a view to developing sea-freight, which will require a simultaneous upgrade of the export infrastructure in order to handle reefer container exports.

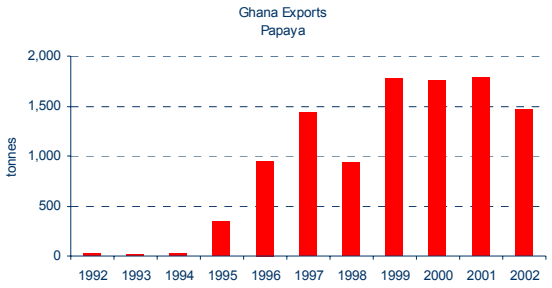
- Papaya is a fast growing and precocious crop and the development of production need not take long.

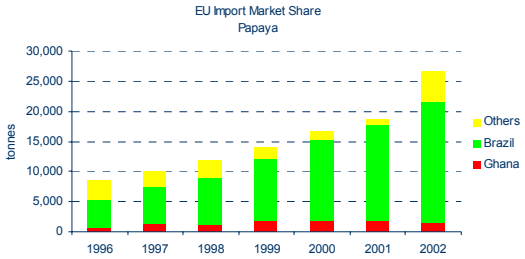
- There is an expanding local demand for papaya, and the fruit is widely sold by the street hawkers in Accra. The processing industry can also provide a local market.

MARKETING

Exports

- Exports expanded rapidly during the late 1990s
- No further increase since 1999.
- Local demand has expanded with street sales in Accra.



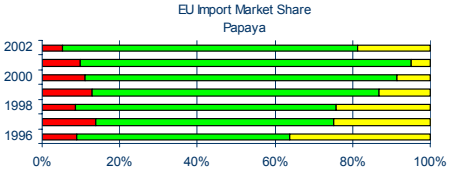


EU Imports

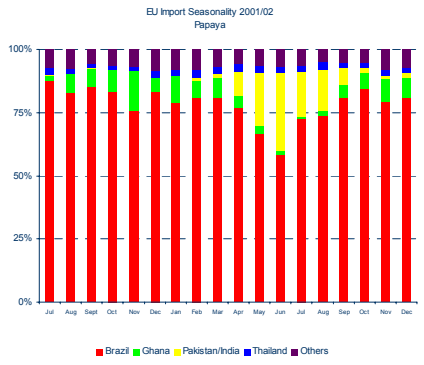
- Consistent strong growth in EU demand over the past 10 years.
- Supply dominated by Brazil
- Sea-freighting from Brazil has lowered prices
- Ghana second largest supplier until 2002.

EU Market Share

- Brazil market share has expanded as sendings and demand have increased together.
- Ghanaian exports failing to assert themselves in this market
- Recent expansion of "others" in the market.



	1996	1997	1998	1999	2000	2001	2002
Others	3,109	2,480	2,867	1,838	1,432	920	4,970
Brazil	4,694	6,139	7,964	10,295	13,461	15,845	20,238
Ghana	774	1,394	1,025	1,789	1,863	1,822	1,415



EU Import Seasonality

- Consistent presence in the market of the Brazilian and Ghanaian exports.
- Brazil generally occupying over 75% of the import demand.
- New appearance of supplies from India and Pakistan in the summer months.
-

Comments:

- Good growth in the EU market for papaya over the past 10 years.
- Ghana ws the second largest supplier of papaya to the EU market.
- Stable output in Ghana and rising exports from Brazil, India and Pakistan threaten the position of Ghana in the EU market.

2.2.3 Mango

Mango development in Ghana has lagged far behind the opportunities. EU imports have grown to 135,000 tonnes from below 70,000 tonnes in 1996. In 2002, Côte d'Ivoire supplied over 11,000 tonnes to the EU while Ghana exported 125 tonnes.

PRODUCTION ISSUES

Varieties: The principal varieties cultivated in Ghana are Haden, Keitt, Kent and Palmer. All are well suited to export to the European markets.

Age: Most of the plantings are less than 12 years old. Productive capacity is therefore rising.

Production areas: A 1996 census[6] showed that mango production was concentrated in Eastern Region and the Greater Accra area. Further plantations were located in Central and Volta Regions. Inland transport costs are much lower than in neighbouring Côte d'Ivoire where mangoes are grown in the far north, but the coastal climate tends to lead to fungal problems with anthracnose.

New plantings have been made further east in the drier climates of Volta Region (Tonggu Farms) but also in the north above Tamale where a subsidiary of Wienco is developing 200ha of irrigated organic mango cultivation to produce 2000 t per year.

Key Players: At the time of the 1996 census there were some 30 farms identified as cultivating mangoes, of which only eight had more than 3,000 trees. There has been significant further planting but the number of farms has not increased substantially. Of the 125 tonnes exported in 2002 the GEPC data show 33 exporters of led by John Lawrence Farms sending 21 tonnes and Tacks Farms exporting 13.5 tonnes.

Seasonal Production: It has been claimed that Ghana is able to harvest mangoes almost throughout the year. This claim has yet to be verified but small quantities of mangoes arrive in Europe from Ghana during most months. The main season lies in the period April through June. With the double rainy/dry season pattern of the south a second crop is also possible in November. The season can be extended by choice of variety, some of which mature earlier than others. The season in the north, for example, is forecast to run from February through July.

Post-Harvest and Export Logistics: Ghanaian mangoes are mostly exported by air to Europe. Sea freighting freighting capability must be developed, with pre-cooled mangoes loaded into refrigerated containers.

Comments:

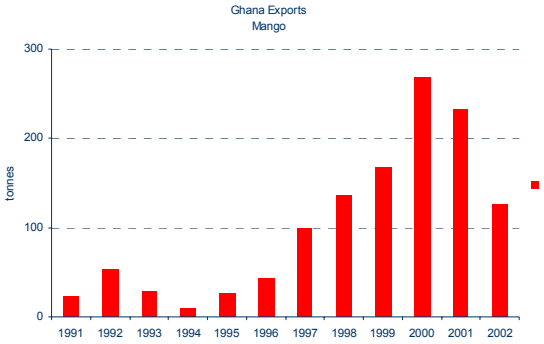
- Appropriate planting areas must be assessed: Volta Region may offer possibilities if the anthracnose problems can be contained, and northern areas may offer better growing conditions if the inland freight costs are not too high. Preliminary indications are that freight costs from the north would be significantly lower than in Côte d'Ivoire.

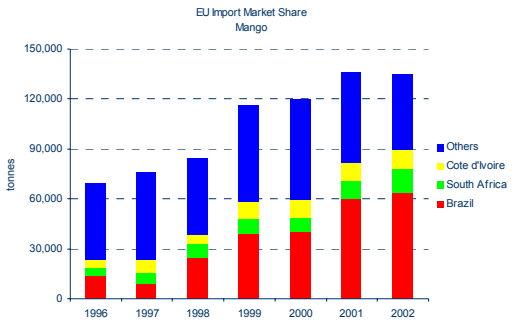
[6] *An Appraisal of the Ghana Pineapple and Mango Industries: opportunities and challenges*. 1196 Amex International, Inc.

MARKETING

Exports

- Exports of mangoes remain tiny.
- Principal destinations are the UK and other EU, South Africa and small volumes to the Middle East.
- Mangoes to South Africa are re-exported as fresh cut.
- An increase in local processing may account for some of the recent decline in exports



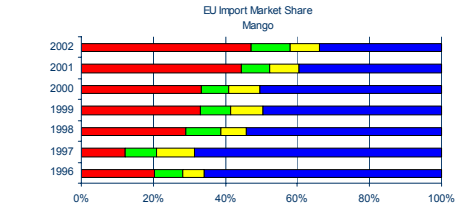


EU Imports

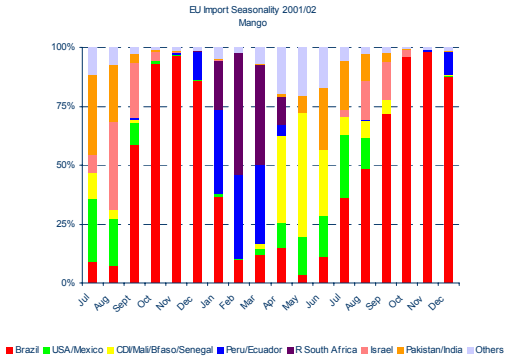
- Strong growth of mango imports to the EU – 96% in 5 years
- Expansion in demand as prices have fallen with sea freight replacing air.
- Expansion of exports from Brazil, Côte d'Ivoire and South Africa
- Ghana has failed to develop in this opportunity

EU Market Share

- EU mango demand characteristically supplied by a large number of producers
- Brazil increasing market share at the expense of 'Others'



	1996	1997	1998	1999	2000	2001	2002
Others	45,318	52,116	45,812	57,706	60,117	53,806	45,581
Cote d'Ivoire	4,154	8,022	5,984	10,266	10,307	10,842	11,084
South Africa	5,402	6,588	8,215	9,897	9,290	10,596	14,423
Brazil	13,887	9,173	24,474	38,408	39,636	60,338	63,655



EU Import Seasonality

- Brazilian supplies dominate the Oct-Dec period.
- West African season coincides with presence of many other suppliers in the market.
- Imports lower in the April-June period than in the Oct-Dec period.

- The EU mango market has grown rapidly over the last 10 years and can probably expand further.
- The ability to use sea freighting is obligatory and here Ghana could have some advantage if the capacity can be established.
- South Africa and the local processing demand can provide good alternatives to the EU market.

2.2.4 Vegetables

Ghanaian exports of vegetables are based primarily on yams. In the 1990s a growing production and trade has developed in the asian vegetable sector, and latterly VEPEAG and others are trialing the production and export of sweet potatoes.

The asian vegetables include:

- Chillies
- Eggplants and ravaiya
- Okra
- Tinda
- Guar
- Yard long beans
- Gourds and marrows

The asian vegetables are all produced either to the west and north west of Accra, within 50 km of the city, or to the east of Accra, towards the Togo border and in the vicinity of the Akosombo dam and the Volta River.

The key players in the Asian vegetable sector are mainly entrepreneurs with an asian background. The trade is for the most part aimed at the ethnic markets of the UK. Quality considerations are restricted, both in the produce and the packaging, by the need to service a cost conscious sector of the market. Margins here are tight and volume is increasingly important. That said, there is at least one operation (EAL) that is successfully exporting ravaiya to a UK supermarket.

The asian vegetables are exported by air and mostly export arrangements leave much to be desired. The products are often repackaged on arrival at the airport, out of doors and open to the weather.

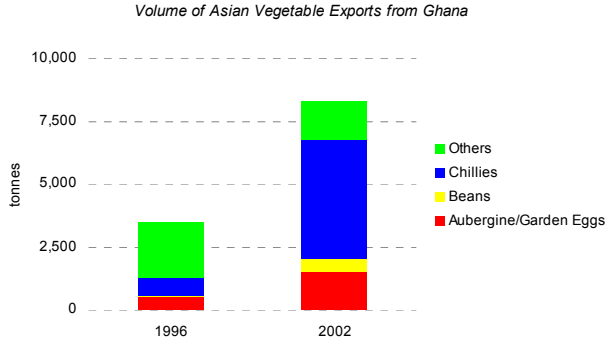
Yams are widely grown and consumed in Ghana and exports are sourced over a wide area.

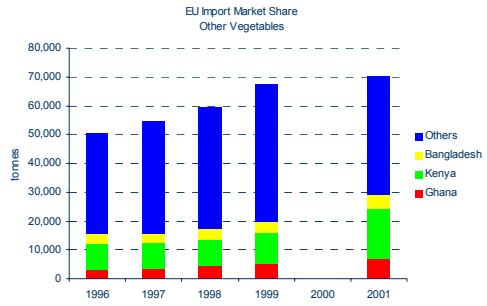
The yam trade is characterised by a large number of casual exporters who send yams irregularly. There is a yam association for the more committed players.

MARKETING

Exports of asian vegetables

- Exports of asian vegetables have grown strongly.
- Chilli peppers are the principal exports.
- The UK is the primary destination of exports
- There is a significant regional trade in chillies



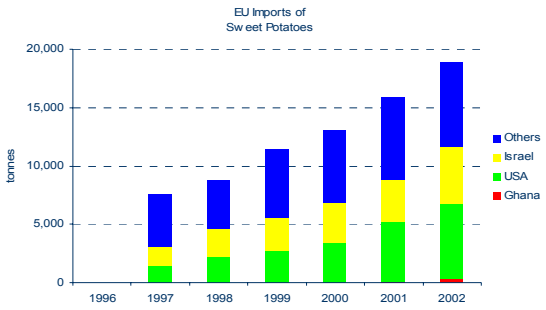


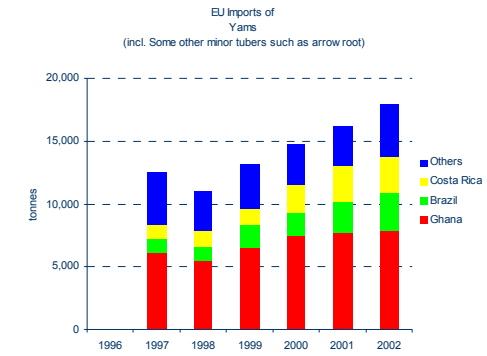
EU Imports of 'other vegetables'

- EU trade data include most asian vegetables (not chillies) within a category of various unspecified fresh vegetables.
- Imports from Bangladesh, Kenya and Ghana in this category are exclusively asian vegetables.
- Imports, notably from Kenya have grown strongly.

EU Imports of Sweet potatoes

- Good growth in EU demand.
- Ghana has yet to make a significant presence in this market.
- There is a notable opportunity here.





EU of Yams

- Ghana leads the suppliers of yams in to the EU.
- Much of this trade is informal in terms of being irregular and with few committed players.
- Nevertheless there is a good demand, particularly in the UK, for yams and the market is growing.

Comments:

- The 'other vegetable' exports have significant opportunities for growth.
- Ghanaian exports could not only benefit from and expanding market but also increase their market share.

2.3 Institutional Environment

The structure of the institutional environment is shown overleaf. Further discussion of some of aspects is given in Annex 3.

The key points are:-

- The institutional environment is relatively complete. There are no obvious holes.
- Apex organisations are in place. One co-ordinates the exporters while the other links the implementing agencies.
- Two of the trade associations, SPEG and GYPEA, are financially independent whereas HAG is about to merge with SPEG out of necessity, and VEPEAG is still strongly supported by external aid.
- Much support is provided by the implementing agencies. There has yet to be a transfer of leadership to the trade associations, with the exception, perhaps, of SPEG.
- There is a severe lack of cluster development and co-ordination between all the players
- MOFA has not given sufficient support to the horticultural export sub sector. The Crop Service Directorate has a team of two, and the extension services are not directly focussed on horticultural assistance.
- The coverage of the government agencies is quite complete, via the Council for Scientific and Industrial Research and the agricultural faculties of the four universities, but there seems to be not enough collaboration between agencies and the links with the private sector are weak.
- There are many donors but not enough co-ordination of efforts. This failing will become more apparent as the horticultural sector develops momentum and attracts further intervention.
- There are sources of capital but these are poorly marketed and under-utilised. For example, the EDIF export development grants and lines of credit, which are particularly advantageous, are both under exploited.
- As discussed in the structure of the industry there is a vigorous diversity of exporting business models with healthy internal competition. The full range of enterprises from small traders through substantial grower-exporters are present, and indeed, there is likely to be a multinational (Dole) before long.
- There is an ample supply of north bound freight options and operators. The logistics base works, and there is a variety of opportunities. These must be integrated into the horticulture sub sector where they should be challenged to innovate. The logistics operators are critical to the further development of exports.

Ghana Horticulture exports
Institutional environment

Private companies

Exporting firms
- Independent Ghanaian fresh produce exporters
- Farmapine
- Fresh cut processors
- Juice processors
- Outgrowers
- Informal sector & regional exporters
- DOLE (to come)

Supporting industries

Materials and equipment
- Agricultural input suppliers
- Irrigation, agricultural, transport
- Packaging manufacturers and distributors

Logistics
- Cold storage facilities
- AFGO
- Reefer and container shipping lines and forwarders
- Passenger and charter airlines
- Private trucking companies

Support services
- Mechanical and cold store specialists
- Financing institutions
- Certification services (SGS)
- Accounting services

NGO

APEX
- FAGE
- PFID-F&V

Trade associations:
- SPEG
- HAG
- VEPEAG
- GYPEA

Implementing agencies:
- Technoserve
- AMEX
- CARE
- IFDC
- MSU
- Sigma one
- NRI
- COLEACP

Government services

Departments
- MOFA
  - Crop services
  - Extension
- Commerce

Agencies
- GEPC
- GIPC
- GSB
- CSIR
- Crop Research Institute
- Plant protection and regulatory services
- BNARI

Authorities
- GCAA
- GPAH

Academic
- Legon,
- Cape Coast,
- Kumassi

Finance

Governement of Ghana
- AgSSIP
- EDIF

Donors
- USAID
- DIFID
- DANIDA
- GTZ
- EU
- IFAD
- FAO

Multilateral lenders
- IDA

Financial institutions
- ADB
- EFC
- Comafin
- Private banks (9)
- Merchant banks(5)
- Leasing companies

2.4 Implementation of Recommendations

If Ghanaian horticultural exports overall have not moved on dramatically in the last five years, it is also true that few of the strategic recommendations, not only from Accord Associates and the MOFA Task Force but also other consultants visiting Accra on horticultural projects, have been implemented. Table 2-3 overleaf and following pages review the status of Accord Associates and MOFA recommendations but many of these recommendations have been made by other parties too. The need for modifications to the port and airport arrangements with cold stores is a recurrent example here.

This inertia in implementation has important consequences:

- Assuming the recommendations are valid, the horticulture export sub-sector is suffering by under performing
- Players, aware of the recommendations, note the lack of support, which induces a culture of blame
- There is a sense of consultant overload: funds are available for industry studies but not to support the private sector

The question of why the implementation is lacking cannot be evaluated easily. Suggesteed reasons such as inertia, financial stricture or political expediency are merely subjective inferences and the difficulties cannot be evaluated objectively in a study such as this .

The most active support to the horticultural sub-sector is undoubtedly in the USAID programmes contracted to AMEX, Care and TechnoServe. Here, there has been ongoing support to the fruit and the vegetables growers and exporters, which has independently covered some of the areas suggested by Accord. It has not been possible to review this in detail (or indeed the support given by other USAID contractors such as Sigma One in policy areas or other efforts not under USAID such as GTZ or NRI) and it would not be appropriate to do so at this point, but, in common with other earlier reports, we would emphasise the need to ensure close collaboration between all efforts directed at horticulture:

- There is a valuable resource of experience and expertise in these programmes which can be leveraged
- It would be wasteful to duplicate efforts
- The possibility of conflicting efforts must be avoided

The establishment of the office for the private-public partnership is therefore particularly commendable as it integrates the efforts of several agencies (AMEX, Care, TechnoServe, MSU) with the private sector through Royal Ahold. We believe that the continued collaboration is essential and this initiative should be supported and extended.

An overarching plan for the future that integrates practical activities of these and other supporting agencies together with donors and government is now recommended.

Table 2-3 Implementation of Accord Recommendations

Accord Associates (1998) stated: "the objective of any strategy ……. in the horticultural export sector should be to **create a modern, competitive, professional industry capable of anticipating and responding to the demands of the market place**". To this end three strategies were proposed each with recommended activities:

a) to increase the unit value of air-freighted exports

Activity	Implementation
Airport cold store	Built by private investors, not integrated into airport cargo handling, largely unused, facing foreclosure by a lending bank
Crop diversification	Limited
Attract foreign technical partners	Some Zimbabwean / South African efforts; limited progress, no success stories yet
Financial appraisals of new crops	Not known; possibly efforts by NGOs
Help market through supermarkets	Only in pineapples
Improve quality standards/ logo/ quality assurance scheme	Only in pineapples, some progress to achieving EUREPGAP
Assistance with marketing skills	Efforts by USAID projects,
Sell C&f to benefit from lowered freight rates	No lowering of freight rates
Long-term commitment from GOG and stakeholders to add value in country	None
Development of direct cargo flights to the UK	No
Support for okra, karalla and melons	No

b) to improve the competitiveness of the sea-freight sector

Activity	Implementation
Explore options for alternative sea freight services	Explored - yes; identified and pursued no
Cool store at Tema	No
Assist banana industry	No
Improve pineapple market share	One or two exporters
Agronomic research into melons etc	None
Yams	None
Reduced packaging costs	None
Road improvement	Road improvement continues but not clearly directed at horticultural exports
Funds for bulk input imports	None
Integration of West African shipping	Some discussion

c) to modernise and upgrade the professionalism of the businesses and organisations in the sector

Activity	Implementation
Encourage farmers to share consulting services	Embedded in USAID support programmes
Review and improve forex loans	Yes, EDIF, ADB, Ecobank
Assistance with business plans	Available through USAID programmes
Improve understanding of the economics of production	Yes crop budgets available through VEPEAG and USAID projects
Training courses	No
Encouraging grower organisations	Limited
Apprenticeship schemes	None seen
Participation in COLEACP pineapple scheme	No
Contractual research	Some with VEPEAG on sweet potatoes
Encourage private sector support programmes	None, unless the private–public partnership with Ahold/MSU included here

The MOFA Task Force (1999) recommendations sought to "…….minimize the call on limited government financial resources and focus attention on the areas of policy formation, regulatory adjustment and the direction of international aid flows…." Sixteen recommendations were made:

- MOFA et al to formulate a clear strategy for non-traditional exports
- Establish an umbrella organisation to represent growers in export markets
- Encourage links between large scale commercial farms and small scale producers
- MOFA et al to plan for increasing the availability of market data
- MOFA to strengthen farm research and extension and high grade planting material availability
- GOG to encourage hard currency loans with terms consistent with needs of individual crop programmes
- Producer associations to work closely with MOFA research and extension
- Education program for farm managers
- Encourage private sector investment in cold chain facilities
- Develop quality standards for fresh produce
- Develop training programmes for quality control and post harvest handling
- Prioritise rural access road for regular maintenance to reduce post harvest losses
- Establish bulk loading and cold stores at Tema
- Umbrella association of exporters for negotiating freight rates and air and ship chartering
- Comparative study of air and seaport and charges in Ghanaian and competing countries
- Develop quality seals and brand names

As far as we know none has made clear progress in implementation.

3. OPPORTUNITIES & CHALLENGES

3.1 Market Opportunities

The future of Ghana's horticulture depends, in part, in the successful repositioning of its existing leading exports: fresh pineapples (whole and pre-cut), papayas, chillies and asian vegetables. However, given a series of basic improvements both in infrastructure and technical capacities, Ghana's horticulture could experience dramatic growth by redefining its product mix and looking beyond its existing core offer. This means that it must review its marketing strategy, currently focused on single product offerings and go the way of the supply chain requirements by integrating multiple product lines. This means that Ghana must consider its product lines as a "product portfolio" that it is diversifying over time.

In accordance with this "portfolio approach", the diversification effort should not be solely focused on near term results but also include endeavours that could yield important returns over time. Predictably, the latter are the ones who present the highest barriers of entry and, in some cases the higher or the more stable returns. The idea is to diversify Ghana's horticultural base in order to extend its market share, and increase importers' and distributors' fidelity by helping them streamline their supply chain. The objective will therefore be for Ghana not to diversify for diversification's sake but to define a series of complementary products that share synergies on a logistical and marketing perspective. Some indication of the scale of opportunities is indicated in Table 3-1 overleaf.

3.1.1 Immediate opportunities

These opportunities are achievable in the near term and are based on products for which the technical aspects are either well mastered or sufficiently well known in Ghana to facilitate dissemination and rapid results:

- **Pineapple:** the conversion to MD2 should permit a quick repositioning of the origin on the high value segments, at least for the remaining years where competition will not have driven prices back down to their present levels – pending the next innovation. However it must be said that the successful conversion to MD2 will require improved and adapted crop husbandry, the implementation of quality assurance systems, the implementation of field level continuous cold chain logistics, predictable marketing programs and improved product promotion aides (attractive branding and individual fruit labelling). A successful conversion would yield additional revenues which could fuel diversification to new opportunities. It would also send strong signals to industry majors which could invest in the country, thus strengthening its critical mass.

- **Papaya:** the conversion to the Golden variety and the development of sea freight logistics, based on a field-to-door continuous cold chain could dramatically improve volumes so that Ghana could take back its once more than 10% of the papaya market which should top 30.000 tons (60 million US$) in 2004 – and grow from there.

Table 3-1 EU Market Share Evaluation for Various Export Crops

PRODUCE	EU Imports 2002			Ghana Market share			Market leaders
	2002 (Tonnes)	2002 CIF - ('000)	5yr growth 2002 vs 1997 (volume)	Tons	CIF '000	% share	
FRESH FRUIT	**1,598,705**	**1,854,900 €**	**25.3%**	**37,856**	**41,901 €**	**2.3%**	
Pineapple	368,458	320,800 €	41%	36,129	39,221 €	12.2%	Costa Rica, Côte d'Ivoire, Ghana
Papaya	26,588	47,300 €	166%	1,410	2,609 €	5.5%	Brazil
Passion Fruit	2,532	11,200 €	23%	2	8 €	0.1%	Zimbabwe, Kenya, S Africa, Israel
Plantain	35,051	29,400 €	104%	265	0 €	0.0%	Ecuador, Colombia, Costa Rica
Melon	175,111	186,000 €	57%	0	0 €	0.0%	Brazil, Costa Rica, Morocco
Mango	134,627	167,600 €	77%	49	64 €	0.0%	Brazil, South Africa, Côte d'Ivoire
Table grapes	320,149	547,500 €	32%	0	0 €	0.0%	S.Af, Chile, Arg, Br, USA, India, Egypt
Limes	29,905	44,200 €	109%	0	0 €	0.0%	Brazil, Mexico
Grapefruit	387,695	321,800 €	-12%	0	0 €	0.0%	Israel, USA, South Africa
Avocado	115,033	165,600 €	17%	1	0 €	0.0%	Israel, South Africa, Kenya, Mexico
Carambola	3,556	13,500 €	29%	0	0 €	0.0%	Malaysia
FRESH VEGETABLE	**473,227**	**813,200 €**	**43.2%**	**14,839**	**19,794 €**	**2.4%**	
Tomatoes	189,694	210,400 €	18.0%	0	0 €	0.0%	Moroccco, Israel, Senegal
French beans	104,299	239,900 €	84.3%	0	0 €	0.0%	Morocco, Egypt, Kenya, Senegal
Peas	12,114	46,200 €	10.2%	0	0 €	0.0%	Kenya, Guatemala, Zimbabwe
Capsicum	35,064	70,700 €	-24.2%	0	0 €	0.0%	Israel, Morocco
Chillies	12,810	26,000 €	#DIV/0!	650	1,482 €	5.7%	Morocco, Dominican Rep
Oher vegetables	67,988	144,800 €	87.2%	5947	11,775 €	8.1%	Kenya, Ghana, Bangladesh
Sweet/Baby corn	14,437	41,400 €	66.1%	0	0 €	0.0%	Thailand, Israel, USA
Sweet potato	18,905	18,900 €	148.4%	353	226 €	1.2%	USA, Israel, South Africa, Egypt
Yams & other tubers	17,916	14,900 €	474.6%	7889	6,311 €	42.4%	Ghana, Brazil, Costa Rica, Jamaica
FRUIT JUICES	**1,061,611**	**816,200 €**		**391**	**391 €**	**0.0%**	
Orange concentrate - Frozen	94,729	75,800 €		0	0 €	0.0%	
Orange concentrate	559,033	391,300 €		0	0 €	0.0%	
Orange single strength	117,451	58,700 €		0	0 €	0.0%	
Grapefruit concentrate	46,440	46,400 €		0	0 €	0.0%	
Grapefruit single strength	60,622	60,600 €		0	0 €	0.0%	
Other citrus	24,236	24,200 €		64	64 €	0.3%	
Pineapple concentrate	116,684	116,700 €		178	178 €	0.2%	
Pineapple single strength	22,256	22,300 €		143	143 €	0.6%	
Others (Passion, Guava, Mango)	20,161	20,200 €		6	6 €	0.0%	
TOTAL	**3,133,543**	**3,484,300 €**	61.8%	**53,086**	**62,086 €**	**1.8%**	
Banana	3,280,916	1,476,400 €	3.9%	3181	1,750 €	0.1%	Ecuador, C Rica, Colombia
TOTAL incl. Banana	**6,414,459**	**4,960,700 €**	25.9%	**56,267**	**63,836 €**	**1.3%**	

- **Sweet potato:** current tests are focused on the Bosbok variety (red skin and white flesh) which holds 10% of the market. Tests of the "American cultivars" and their Israeli derivatives (pink skin and orange flesh) should be carried out in order to develop sea shipments of this fast growing item, well adapted to outgrower conditions. Attention will have to be put on product cleanliness, sizing and packaging, which, for the higher end varieties, are critical (Israeli sweet potatoes have individual stickers…). Sea freight protocols should evaluate the compatibility of Sweet potato and papaya, which would facilitate the development of shipments for both products with economical 40' mixed container logistics. Given adequate varieties and post-harvest management, Ghana could, over time, take a sizeable part, in the region of 5000 tons annually, at a CIF value of more than 1000$ per ton.

- **Okra:** It is ironic that given Ghana's presence on the asian vegetable market, it has not developed the most important ethnic vegetable of all. The reason for this is that achieving satisfactory okra yields of export quality requires a more sophisticated production system than the extensive techniques developed for other produce. Further, adequate crop performance usually requires the use of hybrid cultivars which show some resistance to viral infections. Finally, okra, a green vegetable picked at an immature stage, requires quick cold storage to prevent heat build-up. If these basic requirements are met, the vegetable industry could double its present volume and value over a very short period of time. Ghanaian exporters would then strengthen their position on the market with a full asian vegetable line.

- **Passion fruit:** This product is currently being tested by various exporters, attracted by this product's high unit import price (in the range of 4.00 US$ per kg). Currently, the passion fruit market is divided amongst Kenya and Zimbabwe (traditional suppliers), South Africa (more recent entry with larger fruit) and Israel – these being of the purple variety. A specific niche for "Golden maracuja" is occupied by Colombia. It must however be noted that the EU market for passion fruit does not exceed 3.000 tons and that it is a market that has remained stagnant over the years. Nevertheless, given the absence of the fruit on the local market place and the existence of a substantial juicing industry, the development of passion fruit, spearheaded by experienced exporters, could have an impact that would go well beyond an achievable export volume of 500 tons annually.

3.1.2 Mid term opportunities:

Beyond immediate opportunities there is a range of products whose introduction requires the acquisition of specific technical knowledge and extensive testing before export-grade quality and yields warrant a full extension. The know-how acquisition phase for these products may prove to be the most costly and frustrating for entrepreneurs. Without exterior research support, technical benchmarking and expertise, failures will be numerous and could result in the industry's adopting false conclusions that could be detrimental to further development.

- **Melons:** The melon segment has much evolved over the past years and is now segmented in numerous product categories – yellow honey dew, white honey dew, galia, cantaloupe, charentais, netted charantais, watermelons (seedless, yellow fleshed). New long shelf life hybrids now make it common to ship formerly fragile varieties such as galia

and charantais by sea, which has increased the market share for these high value products. With their growing export volume, melons are an ideal high value complement to sea freighted banana and pineapple and, predictably, leading developers are the large fruit multinationals such as Del Monte and Chiquita. In the pre-cut business, the "melon medleys" (a mix of honey dew, cantaloupe, galia and watermelon) have become a standard item. Consequently, private melon production tests are being carried out by Ghana's pre-cut fruit exporters. But predictably they are encountering problems associated with the fruits great vulnerability to fungal and insect pathologies, as well as the necessity for a finely tuned fertilization and irrigation program. Acquiring a Ghanaian know-how for melon production will require serious applied research as well as the development of drip irrigation and fertilization techniques. Without these the export yields (25-30 tons/ha), required to cover the high cost hybrid seeds and associated inputs, may never be achieved, even though Ghana, with its developing seafreight logistics and ample irrigated land supply, should be able to capture a significant share of this € 186 million market (60% of the total EU pineapple market).

- **Specialty vegetables:** Sugar snaps, snow peas, baby corn, sweet corn, asparagus, green beans all have in common the need for sophisticated crop husbandry techniques, a precise post-harvest system with field to fork cold chains and … high item value. Collectively, these products represent a market value well in excess of the pineapple industry (valued at € 320 million CIF), with much higher profit margins. They also represent an important source of field and packhouse employment opportunities as the pre-packing associated with these product lines is labour intensive. However Ghanaian exporters must cross the technical barrier by developing expertise in irrigation/fertilization techniques as well as integrated pest management methods associated with these products. The dry coastal savannah climate should prove to be favourable for the development of these crops and the improved road links with Accra should permit swift transit of pre-cooled produce. Given adequate cold chain infrastructure at the point of shipment, Ghana should be able to achieve market penetration on these segments, particularly since market leadership for these product lines is essentially held by UK multiples with which Ghana should be able to develop commercial ties fairly easily.

- **Cut flowers:** Ghanaian entrepreneurs, in partnership with Zimbabwean producers, have initiated cut-flower production for export. Although these are at an experimental stage, cut flowers is an important segment that cannot be omitted. However, given its capital intensive nature, focus should rather be put on flower varieties that are adapted to the tropical climate. Basic research and market review should be carried out to single out the cultivars where Ghana has the most chances to achieve a successful market entry. Heliconia and ginger varieties would be the easiest to develop given their adaptation to open-field cultivation. Emphasis should then be put on developing low cost protected shade house systems that could lead to an extension of the product range. Given the quality requirements of the industry, the development of cut-flower exports remains a mid-term objective but could, in time, prove to be, as in Côte d'Ivoire, a successful export segment for specialty entrepreneurs and small growers.

- **Cuttings, foliage and semi-finished plants:** This product range requires the development of an extensive rootstock base from which to harvest the cuttings and foliage. Further, the quick multiplication of new "in-fashion" cultivars requires tissue culture capacities so exporters are able to reach market with sizeable orders. With its cheap freight, coastal climate and extensive land availability, Ghana could try to position itself on this high value segment. To achieve this, a significant amount of skills should be developed, both through the training of plant specialists and the migration of foreign ventures interested in diversifying their supply base.

- **Mangoes:** The development of mango exports out of Ghana will require extensive fieldwork in order to develop the knowledge base necessary for devising sustainable export programs. Existing research, both private and public funded, should be merged in order to answer very specific technical questions before any crop extension program should be launched: zones prone to anthracnose and other fungal infestations, seasonality of major export cultivars (tommy atkins, kent, keitt as well as popular asian cultivars) according to climatic zones, identification of quality rootstock and grafting material, smallholder production methods, nursery and grafting etc. It must be remembered that the Côte d'Ivoire's 15.000 T+ industry (including exports to South Africa), is based on extensive field research carried out over several decades in research stations north of the country. If these preconditions are met, Ghana would be in a good position to capture an important part of the market, particularly in the UK and in Northern Europe where the Ivorians are not as present

3.1.3 Long term opportunities:

Some opportunities never get tested because much of research funding come from donor or multilateral programs which seldom exceed the 5 year horizon. This means that for countries such of Ghana, opportunities to be developed will be those yielding immediate results in the projects' duration and therefore only short term to mid-term opportunities ever get funded. Even though such funding constraints are real, it would be interesting to develop funding and research mechanisms that would permit the initiation of work on crops with longer term perspectives.

- **Tree crops:** These crops fall into the long term category. Since today export crops require more sophisticated production methods (drip and microjet irrigation and fertilization for instance), they are seldom tested. However there exists significant opportunities for produce such as grapefruit (yellow and pink fleshed), lime, avocado and asian fruits such as litchi, longan and rambutans. Most of these products are being produced in an artisanal or small holder fashion in Ghana, with local varieties that cannot meet export standards. The inclusion of these crops in a "venture" experiment to be conducted in partnership with local exporters could open the industry to new diversification opportunities. Once again, the EU market for these export crops presently dwarf the pineapple export market, both in value and in volume. They also present significant synergies with the juicing and eventually the canning industry.

- **Grapes:** Long seen as an impossibility for West Africa, table grapes are being tested in countries like Senegal with encouraging results. This very lucrative market warrants the setting up of testing programs to identify adapted cultivars and adapt growing techniques to Ghana's specific climatic zones. Such a program would have to be designed in a very modest way, focused on gathering technical data rather than achieving immediate commercial results. However, the achievement of acceptable yields in export cultivars will have an immediate effect in terms of investment and the development of horticultural exports.

3.1.4 Bio-certification and Fair trade:

Much has been said about the "bio-certified" and "fair trade" product niches. These market segments command high visibility and higher prices. However, the application of the EurepGAP protocol and the widespread certification of suppliers, as well as the stringent pesticide residue regulations, are bound to limit the growth of these marketing niche, especially on the specific exotics market segment. This is why the "bio-niche" is not an opportunity on which a whole industry's future should be vested, but rather a sector where leading entrepreneurs should be encouraged. Focus should therefore be kept on the wider market and its ever more complex value-adding schemes (pre-cut, new varieties, pre-bagging, pre-packs etc).

3.2 Challenges

There are of course numerous challenges facing the aspiring exporter of fresh produce from Ghana and few succeed in developing a sustainable business. A number of the challenges are discussed elsewhere in this report (particularly in the discussion of a forward strategy in Section 5) but of all the issues of quality have become paramount.

3.2.1 Quality Issues

Capacity in quality assurance has become a condition of integrating in high return supply chains. Table 3-2 sums up observations which all relate to the issue of product quality. These were not limited to strict food safety concerns but cover a fairly large spectrum of activities related to the implementation of quality assurance systems.

It is critical that all those involved in the export of fresh produce, from the farmer to the shipping line, appreciate the overriding importance of quality in the EU markets today. This is not the superficial preference of the shopper but the legal and commercial necessity of food standards and brand management. The production of fruit and vegetables must be seen as food production and not farming. The value of the supermarket brands is such that the multiple retailers are extremely averse to any risk of damaging the brand with inferior produce or particularly produce that may contravene food standards. Furthermore, the fresh produce category is one of the few product groups that the supermarkets can use to differentiate themselves. Unless the supplier can reach the standards set by these organisations, consistently and reliably, this channel, which dominates produce retailing in northern Europe, will not be an option for marketing.[7]

[7] See IDS Working Paper No 96 - *Working Paper 96 – Horticultural Commodity Chains: The Impact of the UK Market on the African Fresh Vegetable Industry* for a good discussion of these problems

Overall, the situation of quality assurance in Ghanaian horticulture can be summarised at the enterprise and institutional levels.

At the firm level, one can observe enterprises that are addressing the issues and others that are not:

- The larger exporting concerns, involved mainly in fresh pineapple exports (whole or pre-cut) and bananas, have engaged independently on their own programs for the implementation of quality assurance systems, mainly aiming for the EurepGAP certification. These initiatives are driven by the will to develop strong market linkages with the major European distribution networks, and the efforts are benefiting from donor-funded programs of technical assistance and support to certification costs.

  The larger enterprises are better able to tackle quality assurance issues by virtue of their

  - managerial capacity (established systems documenting field, post-harvest and shipping operation, inventory management, human resources etc);
  - financial capacity;
  - integrated operations centred on a limited number of well-delimited field locations or on a group of clearly identified smallholders with specific extension employees.

- The smaller scale exporters have been informed of quality assurance and food safety requirements through various donor-funded seminars and training events, as well as through some of their clients. However, they have been slow in implementing recommendations in day to day operations: the wholesale and ethnic markets, on which most of this production is marketed, are not as demanding nor yet controlled as strictly as the mainstream supermarket channels. Further, smaller exporters operate in a less structured fashion, and, for them, the implementation of strict documentation requirements is perceived as a burden, as well as providing excessive transparency on actual operations.

  The difficulties of motivation are reinforced by the practical complications of ensuring full traceability as well as control of actual field practices when sourcing from a number of smallholders. This concern has not yet been addressed by donor funded technical assistance, which has focused its energy on more standard documentation systems. Innovative solutions adapted to the smallholder environment must be developed.

On an institutional level, there is a lack of leadership by the stakeholders themselves in the development of a product normalization framework for horticultural export crops. This leadership is ensured by donor funded NGO's and not by the exporter associations. This does not mean that Ghanaian exports do not follow any standards. Actually, most successful exporters respect specific quality norms imposed by their customers. However, well developed industry norms, that would serve as a benchmark to existing players and future entrants, are not readily available. Ghanaian export associations should use available technical assistance to develop their capacity at establishing industry standards, not only in terms of product specifications but also in terms of approved pesticide lists, codes of practices or traceability systems. This capacity should help the industry both self-regulate and benchmark itself against other industry standards. It could also facilitate their integration with structures such as Eurep GAP or the BRC, which would be an asset to Ghanaian exporters by consolidating market linkages on an institutional level.

In terms of support services to the industry, work is being done to build up capacity, once again through NGO funding. These capacities have yet to be integrated into mainstream activities. The GSB laboratory, recently equipped with modern chromatography equipment, has yet to provide certified residue testing services on a competitive and continuous basis; government and association funded extension services must be able to assist outgrowers in implementing functional documentation and traceability systems; local private consultants must reach the "certified auditor" status for the various standards being developed.

For the time being, most of the training and assessment work is being carried out by foreign technical expertise that can only provide assistance on a short time frame and at a cost that is difficult to sustain on a continuous basis by Ghanaian SME's.

As a conclusion, it is important to provide existing SME's with tools that are adapted to their operating environment. It must also be understood that quality assurance needs a strong industry standards framework, to be established by the stakeholders themselves. This industry appropriation will be critical to the success of any assistance program.

Table 3-2 Quality Issues

	Achievements & Status	Leader	Improvements & Recommendations
Product norms and standards	- No industry-specific product standards readily available nor applied in the certification of export shipments or in sales contracts. - High value exporters (fresh cut fruit, catering, fruit juices) must conform to stringent customer-specific norms which are not publicly disseminated.	SPEG VPEAG GYEA	- Producer/exporter association should convene to establish specific industry-wide recognized standards against which their product could be evaluated upon shipment. Such norms should cover variety, physical and sanitary state of the fruit, maturity charts, sizing and packaging standards, palletizing norms, box and pallet markings, temperature. - Verification should be contracted to an independent body.
Pesticide residue testing	- Acquisition of analytical equipment (chromatography) for a residue testing laboratory at GSB through various funding (USAID & others). - Training of lab personnel to perform residue testing tasks. - EU funded PIP program will further support the establishment of GSB as a certifiable residue testing facility through technical assistance. Accuracy of tests and acceptability from the clients' and EU's standpoint remains to be demonstrated in order for the lab to develop industry acceptance.	GSB	- To be functional the lab must acquire hands on expertise however it does not have the resources to cover recurrent cost of lab supplies nor acquisition of calibrating materials.. - BLP certification is a long process that will require technical assistance and benchmarking of lab results. -
Pesticide management	- Multiple pesticide lists co-exist (GSB list, EU norms, exporter practices, Crop extension recommendations etc). - The more advanced plantations appear to be nearing achievement of Eurepgap certification which indicates a high level pesticide management capacity. - Some training is being done in the field through grower association extension services.	GSB PFID-F&V SPEG VEPEAG	- A harmonised list is currently being devised by GSB however it is not yet published and validated with the private sector nor cross-checked with EU pesticide usage norms. - Currently, pesticide selection, storage and applications are not strictly monitored by outgrowers: storage is often in makeshift installations, equipment is basic and ill maintained, personnel is insufficiently protected and trained in safety measures, application records are limited if existent.
Post-harvest practices	- Post Harvest training program: CCARD - USDA training seminar (2002) - Larger exporters have well run open –air packing complexes which may achieve EurepGAP certification. - There has been private investment in field packhouses, some with pre-cooling capacity which is underutilized due to breaks in the cold chain at the shipping points. - Vegetable exporters use makeshift installations and rely on in-the-field packing practices and subsequent grading. Pre-cooling is non-existent.	PFID-F&V	- Limited dissemination and availability of CCARD – USDA post harvest training seminar material - Cold storage is still not seen as an investment opportunity to increase end value, in part due to inadequate infrastructure at shipping point, but also for a lack of training of industry stakeholders in understanding the cost of quality trade-offs due to inadequate cold chain management (which is one of the pillars of the MD2's success). - Improvement of field packing installations especially for the

	- High value exporters have been able to export fresh cut produce which indicates that the global infrastructure environment, though sub-optimal, can be made to work.		vegetable industry will require functional sheds, adequate storage for packaging material, field crate management systems, pre-cooling, administrative area - Identification of adapted field crates for the vegetable industry and training of growers in post-harvest protocols.
Agricultural practices	- Larger scale pineapple producers are approaching EurepGAP certification indicating that best agricultural practices are being implemented on a significant segment of the industry. - Smaller producers, especially in the vegetable industry, farm with low practice standards: makeshift land preparation, low field organization, inadequate materials and input storage and handling practices, low input use, uncertified seeds, basic irrigation, inadequate employee protection – all of which is in part due to lack of financial means but equally to current technical capacities of field managers. - CARE/Technoserve programs have improved practices at pilot farms.	CARE	- Standard guidelines for export farming need to be developed and disseminated effectively.
Traceability	- Large scale pineapple producers are capable of implementing traceability although traceability codes seldom figure on export boxes. - Among small scale growers and vegetable exports, traceability is not achieved and field documentation is inadequate, although certain pilot operations aim at improving documentation practices at field level.	PFID-F&V	- Efforts should be made to develop a rigorous documentation system for smallholders involved in the export sector. - This system should include proximity assistance from crop extension workers in helping growers maintain the adequate level of documentation.
Cluster formation	- The PFID-F&V initiative as well as other donor led initiatives (CCARD seminar) have built up awareness concerning quality issues.	PFID SPEG VPEAG	- Leadership on the quality issue rests with donor supported NGO's and not the stakeholders. Specific quality monitoring initiatives should be setup by industry associations, aiming at industry standards that can be enforced by a third party. Develop local independent competencies in supporting sectors such as: pesticide residue testing, field extension, post-harvest management and traceability management systems.
HACCP	- Existing producers of pre-cut fruit as well as fruit juices (pineapple and citrus), manage to export and meet customer quality norms. - Actual HACCP certification still remains to be achieved by existing plants, particularly as to management of plant waste.	Private ent.	- Technical assistance and significant investment should be attributed to solving the issue of waste material at the fruit processing plant: storage, composting of solid waste etc.

3.2.2 Competition issues:

The Ghanaian industry must now benchmark itself against an increased number of competitors and strive to differentiate itself not only on the basis of price but also of reliability of supply and quality assurance.

The horticultural export industry must also understand that in a global economy, competitive dynamics are not based on national boundaries but rather on the strategies of the global players who make up the industry.

These global players (the strategies of some are presented in Section 4), are groups such as Dole/Compagnie Fruitière, Del Monte, Chiquita, Fyffe, Caliman, Gaia, Katopé/Mallet Azoulay, Agrisol, Pomona, Capespan, Agrexco, Homegrown etc… who have integrated their operations from field to market and command horticultural development across borders and between continents. These are the "origins" Ghana's operators are up against and any competitive strategy, to be significant, must be based on a thorough understanding of the development objectives of these private concerns.

4. INDUSTRY BENCHMARKING AND KEY CONSTRAINTS

Benchmarking

Ghana's horticultural exporting concerns must compete against foreign competitors who have each developed their own approach to market positioning and value. The individual strategies are based not only on factor costs but equally on each industry's productivity as well as the capacity to grow, innovate and adapt to (if not anticipate) customers' needs. The following section aims at comparing Ghana's horticulture with its direct competitors along several cost and performance competitiveness issues.

This comparative assessment can only be partial given the scope and timescale of the present study, but it is central to the strategic management of the industry. It is therefore emphasised at the outset that the present section proposes a blueprint for further analysis that would quantify and add more detailed competitor knowledge to the evaluations. This process is a cumulative one. It should be led by a cluster group such as FAGE and/or GEPC with contributions from all study, trade and technical missions, training events etc, carried out in the industry, where up to date intelligence can be picked up.

4.1 Cost structure

Export horticulture cost structures vary along a set of basic operational cost factors. Two main structures prevail, mainly along the logistics used to market the fruit. Typically, more than 50% of the cost of air freighted produce is driven by shipping logistics whereas sea freighted produce have a more balanced cost structure. These elements have a direct impact on the pricing of the products and can be deemed structural. Nevertheless, the key to reducing the importance of freight costs in determining cost competitiveness is to increase value, mainly through high-value processing operations such as pre-cut or pre-packed produce as well as just-in-time logistics. This accounts for some airfreight cost structures having a lesser cost proportion for freight and a higher one for packing costs.

In % of CIF value

	Airfreight	**Seafreight**
Farmgate	10-20	10-30
Inland logistics	2-5	5-15
Packing (postharvest)	10-35	15-20
Freight and forwarding	30-70	20-35
Sales & promotion	8-15	6-10
Margin	5-15	5-30

This general analysis, however trivial it may seem, illustrates the key to Ghana's initial success in horticulture. Its significant advantage in air freight costs against other competing origins such as Kenya (vegetables) and Côte d'Ivoire (pineapple) (see Section 4.3 below) enabled it to capture a larger part of the "low value added" markets where air freight costs are

the driving cost factor. It also illustrates that this strategy will have a lesser effect on the developing high value segments where the incidence of freight is much less.

However, freight is not the only cost item driving the price structure of horticulture. Two sets of cost categories interlink to establish the cost competitiveness of the country: direct costs, linked to the producing and shipping operations, and indirect costs, linked to the environment but having a direct "out of pocket" incidence on exporting companies.

4.1.1 Direct cost benchmarks

Land tenure: Often omitted, cost and access to land drives both cost competitiveness and the ability for the industry to grow. The land tenure situation can vary widely from country to country. In Côte d'Ivoire, although new land titles are virtually impossible to get on agricultural land, it is common to sign long term leases (25 years) on agricultural land for 50$ to 100$ per hectare/year. This compares advantageously with Senegal where leases in the Niayes region will be in the vicinity of three times that figure. In Ghana, small holder operations do not factor in the land tenure cost. New industrial concerns in the Volta region will lease land on a long term basis at a cost of _____ per ha. These West African figures compare advantageously with countries such as South Africa, Costa Rica or Brazil where the market for agricultural land is more structured although precise figures are not readily available.

As regards land availability:

Côte d'Ivoire — Competition between horticulture and such commodities as rubber, oil palm, coconut or cashews is significant, and access to irrigated land with links to surface water is limited. Pineapple production is limited to the North by the end of the highway, beyond which road conditions are considered too difficult to access available land.

Senegal — The Niayes region has little land available for further development. The Senegal river alternative is not yet feasible as local rural communities are reticent to cede land on a long term basis.

Ghana — Recent road works that will improve the links between the lower Volta region and Accra will open up an important land potential, connected to unlimited surface water availability, which should prove strategic for further industry growth. Recent developments in the region demonstrate that tenure can be achieved by entrepreneurs.

This relatively easy access to land should be well documented and should be a core element of the sector's investment promotion strategy.

Inputs: When comparing input supply specifically for horticulture with other origins, Ghana is at a disadvantage, not because of price (inputs are usually imported by all its competitors at world market prices), but rather in terms of availability. The industries of countries such as Côte d'Ivoire and Kenya have warranted the creation of production sites (seed farms in Kenya, fertilizer plants in Côte d'Ivoire) or, at least, the installation of distribution hubs of major multinationals, which gives producers access to an array of quality products on a fairly continuous basis. In turn, competing suppliers of seeds, fertilizers and pesticides drive prices

down. This distribution network also limits the stocking costs for enterprises and encourages the use of adapted quality formulations.

In Ghana, specific inputs for horticulture are available and distributed by specialized firms and the economies of scale are lesser than those of neighbouring countries such as Côte d'Ivoire. The pesticide market is distorted by a blackmarket trade in chemicals often of unknown provenance and composition. Seed availability is fairly limited and most exporters rely on their own multiplication, on their own import channel or on the production of the research stations.

Information on pricing and usage is available onhttp://www.afamin.net/ghana/ .

Labour: Labour costs in Ghana are the lowest among its competitors. Currently, daily costs for manual plantation labour rates are in the US $1.25 per day range, when Côte d'Ivoire companies will hire at rates in excess of US $2.00 and Costa Rica minimum wages near US $7.00 per day. This trend should be proportional to smallholder revenue expectations in the corresponding countries. This cost advantage has contributed to Ghana's entry strategy, especially for high labour vegetable production. However, labour costs are also an indication of labour productivity which appears to be lower than countries with a longer track record in horticulture, due to lack of training and experience.

Irrigation: Exporters in Senegal must drill wells down to 100 m to access consistent water supply. Kenyans compete for limited water supply and Israel's water costs impose the installation of sophisticated irrigation systems. In Ghana, as in Côte d'Ivoire, many regions have access to surface water. Currently, a large part of the vegetable and pineapple production is rain fed. Where investments have been made to achieve year-round water supply, these consist of small dams along regional streams and basic pump and pipe surface irrigation.

In the mid term, this ease of access to a low cost water supply puts Ghana at an advantage, if its growers decide to intensify their production techniques. Competing origins import irrigation equipment, and the decision of major exporters in Ghana to switch to such production techniques will not be based on cost but rather on the switch to a different development strategy and a capacity to invest in the long term. Most industrial concerns in Côte d'Ivoire are switching to drip irrigation and testing pivot irrigation in order to stabilize pineapple supply, size and quality.

Energy: The main energy source for most plantations will be diesel fuel since few sites have direct links to the electrical network. The relative cost of fuel is usually driven by competing countries' taxation policy. Costs in Ghana are lower than in Côte d'Ivoire.

Packaging: Packaging costs must take into account not only the "price per box", but should also include the amount and quality of paper used, the printing quality, the sturdiness of design and immediate availability. Packaging is not only a question of containment but also of protection and market presentation.

Currently, Ghanaian exporters either purchase their boxes from a local plant or import their boxes from Europe. All exporters use the folded type rather than the glued system that uses less paper board. Cost wise, unit prices are at a differential of 10% with costs in Côte d'Ivoire for the folded paper type. The glued type of box would lower unit costs but would require the

purchase of a machinery. The breakeven point for such capital expense is around 200 000 boxes per year (4 pineapple exporters qualify).

Ghanaian exporters moving to high value pre-packs will face difficulties where adequate supply is not readily available from Ghanaian manufacturing firms. Aagain, the unit cost differential is not significant in the competitiveness equation. It is rather the economic order level and the logistical delays involved in sourcing these supplies that will create barriers to the development of these items.

Nevertheless, packaging need not be manufactured locally to be competitive, but external sourcing balance with local supply to maintain competitiveness. A leading Brazilian papaya exporter sources its box packaging from a Canary Island manufacturer because it gets the required quality 4 colour printing at an adequate price. This external sourcing capacity is a key competency to be developed by Ghanaian exporters in order to maintain competitiveness at the packaging level.

Inland transport: In comparison with European or north American standards inland transport costs in Ghana are expensive, perhaps four times the cost per tonne-kilometre. This difference is explained mainly by an inadequate inland road network and an inefficient utilization of capacity.

Although this cost item does not usually account for a significant proportion of the cost structure for horticultural exports (if compared to production, packing and freight), it must be noted that a significant difference exists between Ghana and, for example, Côte d'Ivoire. Industry quotes indicate that Ghana enjoys a cost advantage of nearly 40% over the Côte d'Ivoire on shipments to and from the north of the country. In the mango industry, this difference equates to a cost advantage of US $1 000 per container if we take into account the full inland transport costs generally incurred by mango exporters: shipment of equipment and supplies to remote pack houses, transport from field to pack house and container haulage to and from the seaports.

Note that where mangoes are grown in Volta Region, with easy access to the port, the cost difference is even higher.

Export freight and forwarding:

Freight + Forwarding charges (landed at port)

Origin	Airfreight	Seafreight
Ghana	Charter: 0,75 $ Passenger (2,5T+): 0,95 $	Reefer: 180$ per pallet 40' Container: 4000$
Côte d'Ivoire	Charter: 0,90 $ Passenger: 1,20 $	Reefer: 130$ - 150$ per pallet 40' Container: 3500$
Costa Rica	N/A	Reefer: 122$ per MT
Kenya	Charter: 1,20 $ Passenger: 1.50 $ + charges	N/A
Senegal	Charter: 0,90 $ Passenger: 1,10 $	40' Container: 3000$
Brazil	Average: 1.00 $ + charges	40' Container: 3000$ Reefer: N/A

As can be seen from the above chart, Ghana enjoys a significant airfreight cost advantage over all competing origins. For charter cargo flights, this is in part due to the fixed handling charge imposed to AFGO for charter cargo flights, set at US $500 (below normal rates of approximately US $2 000 for a 40T flight). This advantage has withstood the increase in tariffs following the 9/11 crisis and increase in fuel prices, which resulted in a security fee of US $0.13 per kg and a fuel surcharge in the order of US $0.10 per kg, imposed for freight transported by passenger scheduled flights. It is also strongly dependent on the availability of Northbound space on flights originating in Nigeria and South America, where there is an imbalance between north and south bound demand leaving spare capacity on the north bound routes. Ghana is considered to be a relatively efficient stop to pick-up freight. This cost advantage will be somewhat eroded with an increase in the demand for space dedicated to the shipment of higher value items, requiring additional service, with increased perishability risks – and sufficient margins to cover the additional cost.

On the sea freight, much has been written and said about the cost differential of reefer shipments with Ghana, Côte d'Ivoire and Costa Rica. The immediate causes of this differential is the lower freight volume out of the Ghana, with Côte d'Ivoire shipping 400 000 tonnes of produce yearly and Costa Rica shipping 900 000 tonnes of bananas, pineapples and melons to Europe alone (not counting traffic to the USA). The difference with Ghana's volume of 30 000 tonnes is striking and will be difficult to bridge in the near term. However a few observations must be made to bring the sea freight situation into perspective:

- Present freight costs from Ghana are set by a single service operated by the Compagnie Fruitière reefer line. Although there are container services, these do not

currently compete: the cost is higher, there is no pre-cooling capacity, which is essential for successful containerized shipment, and the voyage times are longer. The more attractive rates in Côte d'Ivoire have been achieved over a 10 year period, which began with the dismantling of the parastatal structures that managed the industry, including the SITRAM national freight line. The OCAB system went through several transformations, creating its own reefer chartering service but also experiencing the breaking away of Compagnie Fruitière who set up a competing service which drove the prices further down. Third parties chartered spot reefer services in order to keep prices in check and container lines aggressively challenged the reefer ships in order to capture part of the volume. The lesson here is that to achieve lower rates, Ghana must not only strive to increase its critical mass but must also promote competition between sea freight transporters.

- The OCAB shipping lines are almost exclusively directed to the French ports of Marseille and Dieppe, where the Ivoirien exports represent a significant portion of the ports' activity. The financing of the shipping line is secured by a single forwarder, with significant investments in handling and storage at both locations. OCAB shippers are therefore captive to a system that bears several inefficiencies, and this benchmark should be evaluated accordingly. In fact it is considered by some importers that forwarding services at Dieppe are significantly higher than those of fresh produce hubs such as Antwerp and Rotterdam. This trade off between independence and integration in a single distribution channels merits further analysis, given Côte d'Ivoire's fairly successful performance to date.

- Container freight costs from Ghana are reasonably in line with the West African region and existing overall differences can be compensated by other cost advantages (although, ultimately, product quality and reliability of supply make the difference). Container shipping is the format used for mango, papaya and specialty melon shipments as it is more adapted to the transaction volume in that sector. In order to develop these industries, focus must therefore not be monopolised by the reefer vessel question but must also be allocated to the container handling infrastructure as well as the search for alternatives to present services for perishable produce (for example the leasing of containers directly by SPEG as OCAB does it for complement freight).

- Finally, closer scrutiny of Costa Rican industry leader Del Monte's financial results indicate that more than 80% of its operating margin is driven by non-banana products, although bananas represent half of the company's turnover with a 2% gross margin. This indicates that stated shipping rates for Del Monte pineapples and other produce must factor in the fact that these are achieved by carrying out a near breakeven banana export operation.

Marketing: In Ghana, marketing costs are kept to a minimum, with the merchandising of the fruit largely subcontracted to importers on a consignment or FOB price arrangement. Commissions typically range from 6-10% (inversely proportional to volume and perishability and consistency of supply). Other costs are marginal, such as periodical visits to Europe to meet with industry partners. Few exporters have set up on-site agencies to either sell the produce or monitor the market.

In Côte d'Ivoire, where a similar consignment/minimum FOB price system prevails, OCAB levies a US $0.005 charge per kg shipped by members. This levy is used in part to support an office in the Rungis market to monitor market trends on a continuing and up to the minute basis. However, little promotion has been carried out outside specific one-time efforts financed by the EU subsidy program.

Meanwhile, leading competitors have a more brand-driven strategy. This is not only true of Del Monte which has achieved success through its strong Golden Extra Sweet branding efforts (design, promotion) and an integrated distribution system of fully owned or partner distributors. Leading Brazilian papaya exporters as well as Kenyan vegetable exporters have developed fairly successful brand recognition at the wholesale level and have set up marketing offices near their core markets in order to streamline logistics, reduce wastage and monitor the marketing of their fruits by local partners.

This difference in costs allocated to marketing needs to be further analysed against the benefits it provides to exporters. In any case, the difference in the perceived revenue performance of passive operations with leading Costa Rican, Brazilian and Kenyan exporters is significant.

4.1.2 Indirect costs

Waste: Low cost air freight has permitted the initial entry of Ghanaian exporters in part because lower freight costs leave a margin for error. However, with competitive pressure increasing in the papaya and sea freight pineapple industry, waste becomes a critical cost element. Produce destroyed at destination will bear immediate impacts on an exporter's net margin since all costs incurred for production packing and shipping of wasted fruits are written off against the gross margin achieved by the remaining produce. Typically, one box of wasted fruit cancels out the profit on 5 boxes of sold.

Currently, the rudimentary quality control system at shipping point and the inadequate infrastructure at the seaport are reducing the potential profit of Ghanaian exports by allowing wastage at the destination. In Côte d'Ivoire, the quality norm enforcement system developed by the industry and contracted to a third party firm has significantly reduced non-conformity of shipments, thus improving significantly profitability of exporters.

Foreign currency: In Ghana, in common with other fresh produce exporting countries with floating currencies, transactions for most essential inputs and services such as packaging, inputs, freight and forwarding costs are carried out or valued in strong currencies. This forces independent Ghanaian exporters to juggle their resources between local based foreign exchange accounts and national currency accounts for local costs such as labour, energy etc. This kind of constraint is shared by successful operators in leading export origins, such as Kenya and Brazil, who have developed either strong links with their importers or have created market based parent/subsidiary organizations, both of which serve as a foreign exchange interfaces with the local operation, in order to meet foreign exchange needs on a timely basis and protect themselves from devaluation.

In Côte d'Ivoire, the fixed parity of the CFA franc against the Euro theoretically facilitates the import of equipment and supplies. However, in order to ensure timeliness of settlements, foreign exchange requirement for the purchase of imported supplies and equipment are usually covered through direct payments by the foreign partner, and subsequently credited against the Ivoirien exporter's current account. Integration is brought to its highest level and transaction costs to a minimum in the multinational structures such as Del Monte where

foreign exchange availability and settlements are guaranteed by the group's international corporate structure.

In practice, it can be considered that the lack of forward linkages by independent Ghanaian exporters limits their competitiveness in terms of foreign exchange transaction costs and investment capacity.

Fiscal: Fiscal issues are complex and benchmarking will require a much more thorough study of the implications than is possible (or appropriate) here. The issues are not simply the levels of taxation but also the administration of the revenue and the ability of the enterprises to benefit from exemptions and preferences. Thus, Ghanaian exporters, able to reclaim duties on imported items, complain of delays in the drawback system that obliges them to manage the cash flow. In Senegal and Côte d'Ivoire, exporters enjoy a "Free zone" status which permits them to import and re-export packing supplies on a duty-free basis, with limited impact on cash flow.

In Ghana, registration as an « Export Processing Zone » allows, *inter alia,* complete exemption from income tax for 10 years, 100% foreign ownership and no restrictions on repatriation of profits.

Del Monte preferential tax status in Costa Rica and elsewhere in the world, translate into an aggregate taxation rate of approximately 12%. In Senegal companies engaged in agricultural production for export benefit from an income tax rate limited to 15%.

Finance: Supplier credit is available to Ghanaian exporters having demonstrated stable operations but is tightly managed, which can disrupt operations when cash flow shortages appear. In effect, little working capital is available in the banking sector to sustain growth. Local interest rates take into account the important devaluation rate of the national currency which makes it less attractive.

The recently created EDIF credit facility opens a possibility for exporters (some have applied and been financed) and the proposed rate of 15% is low in view of the exchange rate gains induced from export transactions versus the impact on the residual balance of devaluation of the national currency. Among the finance houses the Export Finance Company Ltd (EFC) provides short-term trade finance to the non-traditional export sector. For long-term capital, exporters rely on sources such as IFC or CDC credits to invest in infrastructure.

This situation is not unusual in the global horticulture sector: in competing countries, supplier credit is kept to a minimum and most firms rely on internal systems in order to cover their working capital and investment needs. In Côte d'Ivoire, most exporting companies have close links with importing partners, either through parent-subsidiary relationships or through contractual financing arrangements for both short term and investment financing. These enable the exporters to indirectly access low-cost financing. In Costa Rica, Del Monte's supplier accounts are kept at a tight 40 days and current operations are financed by multi-million corporate credit facilities negotiated on the international market at LIBOR+ rates.

On their part, some of Ghana's exporters have developed close ties with importers that are willing to guarantee payment of basic items such as freight or packaging, which will be withheld against subsequent shipments. These relationships remain to be further formalised in order to prevent the adverse effects of cash dependency in the exporter-importer relationship.

The complex financial transaction environment limits the ability of Ghanaian exporters' independence from importers and carries important transaction opportunity costs as such concerns capture a significant part of management's attention, away from production, quality, customer service and product development issues.

Subsidies: Though seldom addressed, significant differences appear to exist between competing origins in terms of government and donor assistance to industries. These include the building of infrastructure as well as public technical assistance programs specifically targeted towards the horticulture export sector and, ultimately, direct and indirect financial assistance to exporting companies. The following list can only be partial as industry-wide subsidy schemes would merit a comprehensive review:

Ghana	Identifiable subsidies and assistance include the recently established subsidized low-interest EDIF loan and the corresponding innovation facility; a fixed rate cargo aircraft handling charge at US $500 (which corresponds to a US $0,05 per kg subsidy). Donor agencies such as USAID and GTZ are active in the horticultural export sub-sector.
Côte d'Ivoire	The country has benefited since the mid 1990s from a €30 mn+ EU program covering access road rehabilitation, direct subsidy for plantation and pack house modernization and conversion, construction of a modern fruit wharf and the development of computerized traceability systems, quality training; the existing exporters benefited from a network of post harvest plants that was built by former parastatals and are now used at little cost.
Costa Rica	The government actively promotes horticulture, with favourable land attribution schemes and fiscal incentives. It also appears that specific subsidies are granted to individual companies. For example, subsidies from the Government of Costa Rica to Del Monte for their pineapple program were stated at US $9 mn in its 2002 annual report (this subsidy question warrants additional investigation). It must also be noted that the MD2 was developed in partnership with University of Hawaii research programs.
Kenya	The country benefited from many donor funded technical assistance programs aiming to improve technical and promotional capacities. The government funds horticulture specific research and extension services.

4.2 Key productivity factors

In addition to these cost elements, Ghana's competitiveness on the horticulture export market will depend on relative advantage in a number of structural elements that drive growth and innovative capacity.

Land availability: As mentioned earlier, land availability is not a given in the competing horticultural export countries. In Côte d'Ivoire, the allocation of land to a given agricultural activity involves the computing of opportunity costs against a series of rent commodities (cocoa, oil palm etc). In Senegal, Israel or Kenya, the access to irrigable land is limited and requires extensive investment. In that perspective, although the legal framework for the transfer of land tenure to investors remains to be formalized, Ghana possesses an important undeveloped land reserve with access to water.

Agro-climatic conditions: Ghana's diversity of climates, particularly in its coastal regions (in the seaport's vicinity), is a definite advantage over many competing countries. It gives the opportunity to develop off-season, prolonged season and tropical exotics with a direct logistical connection both by air and sea. No other country in West Africa possesses this "layout" in climatic diversity.

Irrigation and agricultural techniques: Here Ghana suffers a relative disadvantage as very few exporters have mastered the more sophisticated irrigation techniques associated with intensified production. The lack of a generalized capacity in this domain means that even with lower costs, *there will always be a yield gap* between Ghana and countries such as Kenya, Brazil or Israel. This gap will equally grow with other West African countries such as Senegal, Côte d'Ivoire and even Mauritania, where private and public projects are implementing intensified production techniques.

Labour force: It must be noted that Côte d'Ivoire and Costa Rica have been in the pineapple business for decades. The same is true for French beans from Kenya and Senegal. This experience has generated a critical mass of labour with the basic competencies in the husbandry of these crops. These competencies can be put to use on industrial plantation as well as through small holder schemes. They can also be transferred to related crops and facilitate diversification. Ghana's relatively recent entry on this market has yet to generate such a critical mass of knowledge that becomes engrained in local expertise, which will strongly limit its capacity for growth.

Middle management: The availability of operational managers with strong hands-on experience is a critical issue since it is at the basis of a start up firm's capacity to grow and thrive as a business. As a supporting anecdote to this point, is interesting to point out that a number of successful Ghanaian nationals in the export sector were former accountants. On the opposite, most of Farmapine's management are former civil servants with government administrative experience.

In countries such as Côte d'Ivoire, the lack of such capacity is gradually being closed by a younger generation with few options in the government services. However, many exporting concerns bridge the middle management gap by hiring young European nationals at key operational management posts. In Costa Rica and in Latin America as a whole, the more structured multinationals have been able to train a national capacity. Ironically some of these middle managers were employed in Côte d'Ivoire in order to manage the technical transition in the banana industry. It must be noted that such capacity is built up not only through training but mostly through hands on experience acquired alongside seasoned professional managers, thus the importance to foster partnering with entities that are willing to transfer such know-how.

Entrepreneur clout: Growth in an industry is not administered but rather driven and fed by leading entrepreneurs. Ghanaian entrepreneurs have demonstrated consistently a definitive clout in developing key advantages and in penetrating existing markets. These existing and emerging entrepreneurs need to be supported as they will be the basis of the industry's future vitality. By contrast, one should consider Côte d'Ivoire's failed parastatal system in the fruit industry, which encouraged nationals to adopt rent seeking strategies that left the space open to a largely European managerial control of the industry. On the other hand, the independence demonstrated by Ghanaian entrepreneurs will, in certain cases, block opportunities for technical and financial partnering which are essential to a fast progression of the industry.

Quality management capacity: As described in section ___, quality management in the horticultural industry has evolved into a distinct set of skills that determine the capacity of an industry to link up with the dominant distribution channels. In this respect, Ghana trails countries such as Costa Rica and Kenya in the implementation of the EurepGAP and other quality frameworks such as the ISO 9000 and 14000 norms, BRC and HACCP. However Ghana's awareness of these issues puts it ahead of a large majority of companies in Côte d'Ivoire who, in part due to captive French distribution channels, have focused on the sole pesticide issue and have yet to develop a traceability system that permits field-to-fork product tracing and have yet to seize the importance of the certification process.

R&D and technological transfer capacity: All leading countries count on a form of efficient institutional and private R&D and technological transfer. Examples include:

Côte d'Ivoire	The mango industry originates from the tree crops research station in the north, which disseminated sound husbandry techniques and export varieties
Kenya, Senegal	Export horticulture industry is founded in the private endeavours of foreign specialists who tested and disseminated various crops
Del Monte	The MD2 pineapple cultivar was developed through partnering with the University of Hawaii
Israel	Research and development is carried out through direct linkages between institutional and private resources and results in the fastest idea-to-shelf transfer in the industry

In Ghana, some research and technology transfer is achieved by a small number of private concerns, but an efficient funding system, integration of public and private research, and a strong capacity for managing innovation are lacking in Ghana and need to be developed.

Logistics capacity and performance: Much is said in Ghana about the cost of export logistics, but other elements must also be taken into consideration when evaluating the country's competitiveness in this respect:

- *Seafreight:* Fresh produce requires refrigerated conditions, either in container or in the hold of a vessel, for the voyage times to Europe. Ghana can count on refrigerated vessels calling at Tema port twice per week. These achieve 10-12 days transit times to South and North Europe respectively. Major container lines ship either directly from Tema or Takoradi and maximal transit times are of around two weeks but can exceed this delay depending on the final routing of the ships and on delays at intermediary stops.

  By contrast, containers originating in Senegal have no intermediary stops and reach northern Europe in 6 to 8 days. The industry has managed to have access to a specific shed which has yet to be converted to a fully functional fruit wharf. Such a configuration puts Ghana at a disadvantage against countries such as Côte d'Ivoire and Costa Rica who have substantially invested in infrastructure and technical capacity. These countries have developed fluid port operations which limit the need for exporters to monitor actual shipping of goods. As a specific example, Côte d'Ivoire has developed a real time "bar code" pallet traceability system, which enables

exporters, forwarders, shippers and importers to trace individual pallets through the shipping process. Nevertheless, with its existing shed and relatively frequent ship callings Ghana possesses the building blocs to develop a competitive logistics base.

- *Airfreight:* Other than a low freight cost, Ghana's main advantage is the availability of freight capacity and the breadth of destinations covered by the various companies. Although it cannot compare with Kenya's 300 to 600 tons per day capacity, at 20 000 tonnes yearly, Accra is one of the airports in SSA with the largest northbound freight capacity. By contrast, Abidjan operates at 10 000 tonnes while Dakar exports 15 000 tonnes (10 000 tonnes of which is fish). But most important of all, Ghanaian exporters have access to a diversity of destinations due to the diversity of airlines using the Accra platform. Most European destinations are covered by passenger services, particularly the UK, Benelux, Germany, Italy, France and Switzerland. By comparison, Abidjan shippers are currently limited to Air France's and SN-Brussel's services. Senegal does not have direct flights into the UK and Dutch market.

  Another advantage Ghana has had over other West African destinations is its efficient and, more importantly, predictable ground handling service – which has set it apart from neighbouring countries, plagued by Air Afrique's monopolistic practices designed to discourage independent charter services. With the dismantling of Air Afrique and many the increasingly liberalised operations of other West African airports, Ghana may have to compete to keep its existing pool of northbound cargo space. This inevitably will translate into higher freight costs which will have to be offset by an increase in value of the produce shipped, a process that Ghanaian exporters are currently engaged in through the replacement of pineapple shipments with higher value vegetables and pre-cut fruits.

- *Cold chain:* At least two of the entrepreneurial Ghanaian exporters have taken the initiative of implementing a cold chain. The risk has not paid off. These private investments are substantial and can be evaluated at several million dollars. However, the investments, mostly realized upstream in the supply chain, cannot be put to use while there a break in the continuity of the chain at the shipping level, both at the port and the airport. The facilities stand idle while interest payments mount.

  At the seaport, Shed 9, currently partially dedicated to the shipment of pineapples, is an ill ventilated facility, with interior temperatures generally 5^{o} C above ambient. Such conditions will ruin pre-cooled produce. Exporters who will nevertheless pre-cool their produce must await the last minute to unload shipments.

  At the airport, the AFGO export shed has a very limited capacity and is seldom used to store produce. The critical cold storage needs of the fresh cut exporters have been addressed by their setting up makeshift cold stores at the airport or by having reefer trucks on stand-by until loading time. Otherwise, a cold store facility, with pre-cooling capacity, has been built on private funds in the immediate vicinity of the export shed. However, direct access from this facility to the export zone is walled off, imposing a detour by urban roads which cannot be undertaken by aircraft pallet and container dollies hauled by tractors. The facility is therefore virtually unused, although it could provide a basic service that is critically needed. This situation puts Ghana at a definite disadvantage against its competitors. Kenya's Jomo Kenyatta Airport offers a dozen cold stores in its immediate vicinity, with direct links to the

airstrip. Senegal is currently equipping itself with a 200 ton capacity cold store with direct airside access.

By closing this gap with judicious investments, Ghana would not only give a new life to dormant investments but equally encourage the transition to higher value fresh crops.

Strategic public infrastructure: It is a given that efficient infrastructure gives an edge in terms of efficiency, cost effectiveness and growth potential. As an example, Côte d'Ivoire's pineapple and banana industry is located alongside a functional road and electrical system. Its mango industry has benefited from the installation of cell phone technology in the north country, enabling coordination of operations with Abidjan, which was previously covered either by costly satellite phones or an inefficient messenger service. Significant investments were made with EU funds to improve specific feeder roads and electrical lines, in order to link-up banana and pineapple producing plantation and smallholder basins with the main road and electrical network. Current investments by Ghana in its road links to potentially productive regions such as the lower Volta will greatly improve Ghana's horticulture industry to grow and compete. However, existing infrastructure programs should be made aware of the industry's development perspectives when allocating resources in order to maximize their impact.

Cluster structure: Leading countries generally have developed strong clustering linkages.

Kenya — Interaction between trade associations and the government for the promotion of horticulture resulted in specific departments and bodies dedicated to supporting the industry in fields such as research, promotion and extension. The industry can also count on an important supplier base in all aspects of crop production and export (seed production, irrigation equipment, packing supplies etc).

Côte d'Ivoire — OCAB has promoted the creation of private companies specialized in the handling of fruits, the provision of laboratory services (soil analysis, tissue culture, residue testing) as well as quality control

Ghana — Ghana has a diversified group of export trade associations (SPEG, VEPEAG) as well as a federating body (FAGE). These structures interact more or less with state organizations involved in export promotion (GEPC), crop research and extension services as well as the Ghana Standards board. However, links with key supporting industries such as the airport and port community (shippers, airlines, forwarders, customs, port authorities) and the packaging industry are weak and limit synergies.

4.3 Benchmarking by individual product

The following charts present a comparative analysis of the price structure for various producing/exporting origins for pineapple, papaya, mangoes and chillies. They illustrate the current results of the competing strategies on which Ghanaian exporters have chosen to position themselves.

All charts aim to analyse the import price in terms of its constituents: farmgate costs, inland transport, packing (box + sorting/grading & cooling), export freight, export marketing costs

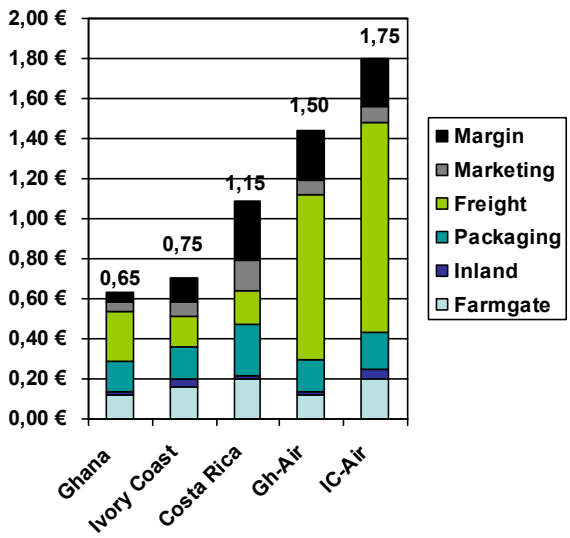
and, finally, export margin. The choice to use CIF market price rather than an estimate of the aggregate costs is based on the consideration that the net margin is a significant indicator of the origin's capacity to both invest and compete. It also is an indication of an origin's "value" strategy relative to that of the others as the CIF price reflects the actual value assigned by the market to a country's supply proposition.

The CIF values used are estimates by the consultants based on the ITC weekly wholesale price data. The cost analysis are based on available reports and interviews. The data should be taken as indicative. A more precise and formal survey should be devised and carried out in order to establish definitive values, if required.

Elements such as the impact of waste on unit costs as well as the incidence of currency fluctuations, the industry's cost of capital or the impact of national and import fiscal rules were not isolated in the relative cost structures shown below. They could have an important impact on relative competitiveness which remains to be analysed in depth. This kind of competitiveness survey should be carried out by stakeholder and government organizations such as FAGE, SPEG, VEPEAG or the GEPC, on a regular basis in order to monitor changes in the competitive environment.

4.3.1 PINEAPPLE

The positioning of Ghanaian pineapples in the EU market reveals a low cost strategy to gain market access by pricing advantageously against competitors.



This strategy is effective on the airfreight market segment because of the low airfreight cost from Ghana; Ivoirien airfreight exports were only able to maintain position through specific captive niches on the Rungis (Paris) market.

In the sea freighted pineapple segment, the same strategy is applied, despite higher freight costs than both Côte d'Ivoire and Costa Rica, but the Ghanaian exporters compensate with lower farmgate costs, inland logistics and margins. The French market has been little affected by this positioning: the close integration of Ivoirien production with French marketing companies, the quality management and the improving shipping infrastructure – albeit staying short of implementing full berth-side cooling facilities - have supported the continued strength of the Ivoirien exports to the French market. Hence, the bulk of Ghana's export is delivered into the North European market, which is strongly driven by discounters.

Now, West African pineapple exports are being challenged by the "Del Monte Gold" – MD2 phenomenon. By investing significantly in production research, post harvest, packaging and marketing, Del Monte is able to achieve a product that permits it to position itself on a slightly inferior price level than the high priced air freighted produce, with comparable quality and superior promotion and marketing, but a "sea freight" cost structure. By comparison, Ghanaian and Ivoirien marketing costs are limited to the importers' commissions, with

minimal promotional support and downstream marketing efforts. Post harvest costs for both West African countries are kept to a minimum, with basic open air pack houses, no pre-cooling capacity, ambient temperature shipping logistics and basic paper board packaging. Del Monte's high value strategy has resulted in spectacular 25-30% net margin levels on their pineapple line, which should enable it to invest in further improving and integrating its marketing networks.

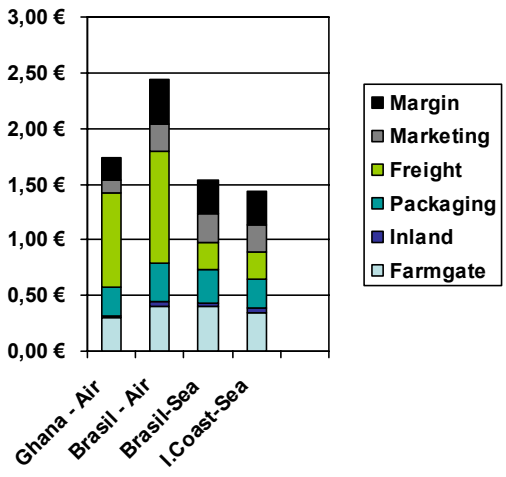
In view of these developments, it is essential to reposition the Ghanaian pineapple exports, aiming to improve the value proposition while taking advantage of a potentially lower cost smallholder and SME system, if agricultural yields and waste levels can be improved. This requires important investments in:

- the cold chain, beginning at the point of shipment, working back to field level in order to ensure continuity and consistency of supply, which will be the basis for the integration of Ghanaian exporters to more structured distribution channels currently occupied by Del Monte and the like.
- improving product standards
- introducing the MD2 cultivar which is being demanded by the market, although the current Cayenne variety remains to be tested with later harvest under a continuous cold chain.
- developing containerized freight should be developed in order to permit doorto-door service and to drive reefer shipping costs down. This will require specific pre-cooling and shipping facilities at the seaport or at plantation level, either public or private.

This strategy should significantly improve the CIF price, resulting in stronger margins, which in turn will generate the surplus necessary for further investment by Ghanaian firms in production, post harvest and export marketing management.

4.3.2 PAPAYA

Ghanaian exporters succeeded in penetrating the papaya market mainly because of low logistics costs, which permitted airfreight into Europe at a fraction of the cost of market leader, Brazil.



This low-price/low value positioning is currently being challenged by Brazilian and Ivoirien exports. First, the switch by Brazilian growers to the Golden papaya, characterised by a near-perfect yellow outer skin colour and a longer shelf life than the former Solo varieties, has redefined the papaya market, not only for air-freight but also for sea freight. The fruit's sturdiness, linked with the introduction of chilled pack houses, has permitted Brazilian exporters (led by the Caliman and Gaia brands) to develop sea freighted fruits, thus reducing costs and "sandwiching" Ghana on the higher and lower ends of the market. Secondly, the prominence of certain Brazilian brands, namely Caliman and Gaia, has been enhanced by these firm's promotional strategies based on strong partnerships with dynamic importers on targeted geographical markets. Caliman, the industry's premium brand, has several "exclusivity" agreements (Wealmoor in the UK, Helfer for France and Switzerland). Thirdly, the Ghanaian exporters' position is threatened by developments in Côte d'Ivoire, where growers are switching to Golden and exporters have succeeded with sea trials using the

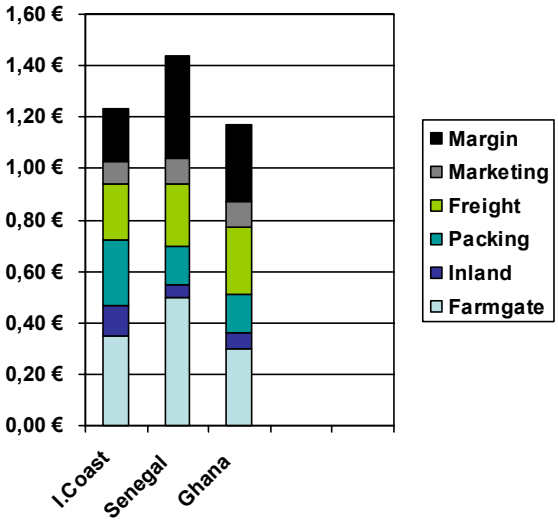
banana reefer lines. Côte d'Ivoire is currently subsidizing conversion of former small banana plantation into papaya production.

On a technical side, Brazilian firms operate large industrial plantations (50 ha +) using either drip or pivot irrigation. Factor costs are equal or generally higher both for Brazil and Côte d'Ivoire than in Ghana but the Brazilian post-harvest system reduces waste by a significant factor which reduces significantly end unit costs and increases actual profit margins. Interestingly, Brazilian industry leaders intend to develop outgrower production, to reduce costs and agricultural risks since papaya grown on plantation scale is prone to strong variations in yields through sensitivity to climatic variations and pest infestation. This strategy is also aimed at developing a year-round stable supply, since Brazil still has difficulty in ensuring year-round supply of top quality product.

To remain in the papaya market, Ghanaian exporters must respond quickly to the challenges posed by the competition. Already market share is with diminishing although the European market is experiencing double digit growth. The response should meet head-on with Brazil's high value proposition: introduction of the Golden variety, cold-chain logistics, development of regular containerized reefer freight, improvement of product quality and promotional appeal. It could develop a marketing edge with a year-round supply based on a geographically diversified smallholder system. Finally, Ghanaian companies should strive to establish strict product norms and achieve market links with the global European markets.

4.3.3 MANGO

Currently, West African market leaders are the Côte d'Ivoire/Mali/Burkina, with 12 000 tonnes of exports on the April-June segment and Senegal which should achieve 3.000 tons in 2003 on the July-September window.



As can be seen, CIF price levels vary considerably between exports from Senegal and Côte d'Ivoire: the competition on the April-June segment is more intense, with a strong presence from Central and South American origins such as Puerto Rico, Venezuela, Brazil and Mexico. This limits considerably achievable margins by the Côte d'Ivoire exporters who must strive to keep costs down. The January – March windows are supplied by Peru and South Africa at a much higher price level, as is the July to September segment. Côte d'Ivoire exporters have developed strong relationships with their importers who manage programs in coordination with the larger distribution channels, which in turn permit higher and more stable returns than on the spot wholesale market. This has been achieved recently due to a consistency in quality which is the result of an effort by the exporters to standardize outpput through norms and intensive training of field and packing personnel.

No significant logistical cost differences exist at the sea freight level since containerized freight costs are comparable for all origins, at approx 3 000 to 3 500 Euros per 40' refrigerated container into Northern Europe.

Inland transport costs appear to be lower in Ghana, both because of more competitive costs into the Northern Region and because of coastal supplies, nearer to the ports. The more mature Ivorian industry relies exclusively on mechanized packing houses, some of which equipped with pre-cooling capacity, which entails higher packing costs. Further, packaging materials must be trucked 700 km north to the packing houses, which adds in between 15% to 20% to that cost. Many Senegalese exporters rely on manual packing systems, the more successful being equipped with pre-cooling capacity (installed initially for their French bean season). A significant cost difference lies at the production level. Production in the Northern Côte d'Ivoire/Mali region is relatively low cost, due to low input extensive farming practices of a mainly smallholder system. In Senegal, production costs are higher with more intensive production systems (from 2 to 6 times the planting density of Côte d'Ivoire) and a drier climate demanding irrigation.

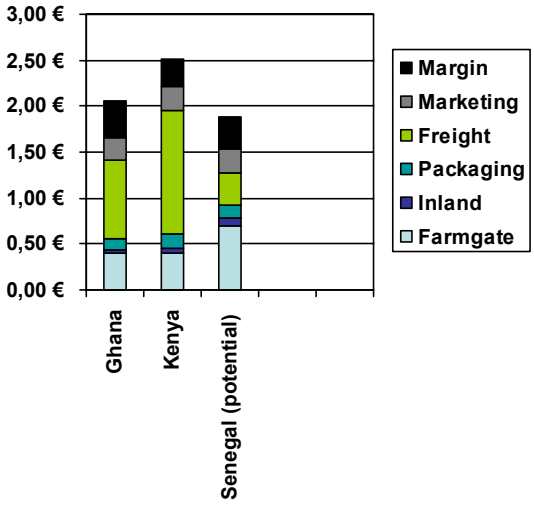
For producers in both Côte d'Ivoire and Senegal, a significant challenge has been to identify the "anthracnose-free" zones: areas where this characteristic fungus infestation is limited, usually due to dryer climatic conditions. Otherwise, the investments in terms of phytosanitary control would be too high in an outgrower system. This aspect is well mastered in Côte d'Ivoire and under study in Senegal. Both origins are being challenged by traceability and pesticide management requirements currently being implemented in Europe. The implementation of strictly documented production in a smallholder system (Côte d'Ivoire alone numbers more than 3 000 mango farmers), poses a serious management challenge to existing exporters.

As this analysis demonstrates, Ghana has a strong potential to enter the export mango market. At the outset, its cost structure is intrinsically lower than that of Côte d'Ivoire, due to lower inland freight, which in the case of mangoes has an incidence on many cost items. However, the strongest advantage is the potential for a continuity of supply from December to June in export varieties. This continuity of supply, if verified through field research, could prove a determining competitiveness factor by giving the opportunity to Ghanaian exporters to establish seasonal ties on a longer time frame with European distributors, all of which are interested in reducing their supplier base.

In order to achieve durable market penetration, Ghana must first develop its technical knowledge and extension capacity in mango husbandry techniques, in export grade cultivar availability, as well as in post harvest techniques and standards. On the logistical side, efficient cooling at shipping point, adapted to containerized freight will be critical to ensure high produce quality. Finally, the development of smallholder production should be carried out bearing in mind the necessity for the implementation of strict traceability and production documentation norms. This should enable Ghanaian exporters to link-up with the more profitable marketing channels and ensure a sustainable industry development.

4.3.4 CHILLIES

Chillies can be used here as a proxy for the Asian vegetable business which has experienced strong growth over the past years. As with products pineapple and papaya, Ghana's approach on this market has been low cost trade-off against higher quality competitors. Again Ghanaian exporters have benefited over their competitors (in Kenya and Zambia) through the airfreight differential. This low-cost strategy influences production techniques which are based on a "no disbursement" approach favouring the use of self multiplied seeds (rather than hybrids), limited field preparation, rain fed or basic pipe irrigation, minimal fertilization and makeshift post harvest installations.



This strategy has been effective in securing an initial foothold on the market but will not allow additional growth by the integration to the more mainstream distribution channels. The Kenyans have adopted a significantly different strategy: exports are positioned on the higher value segments and manage to occupy a major position despite significantly higher air freight costs. This is largely due to a more productive system (hybrids, irrigation, protected fields), as well as an efficient cold chain ensuring prompt pre-cooling of produce. Kenya's chillies are present on the higher end wholesale markets (2 kg boxes) as well as on the supermarket pre-pack segments. Management systems ensure produce traceability for the production that is marketed in the supermarket channels. Thus, Kenya is able to compete with Ghana by achieving higher yields (lower or equivalent costs if waste is taken into account), higher quality, production consistency and for part of its production, full traceability.

The analysis for chillies has been completed by a simulation for shipments of "scotch bonnet" chillies from Senegal by containerized sea freight. It is possible for Senegalese exporters to reach the North of Europe in 6 days by containerized freight. Tests on containerized shipments of pre-cooled produce have been conducted with satisfactory results. This means that despite higher production costs (need for deep drilled wells and drip irrigation) and the need for pre-cooling facilities, Senegal could pose a serious "price" threat to Ghanaian exporters since the airfreight/sea freight differential is such that their low-cost production advantage would be cancelled out. The only remaining advantage, which is strategic, remains Ghana's current linkages on the UK market, which is the most important destination for such produce. Due to linguistic barriers, it will be difficult for Senegalese producers to target this market efficiently in the near term.

In order to secure its current market share, Ghanaian exporters must therefore go the way of the East African competitors and strive for higher quality and strong integration with its strategic distribution channels. The industry must increase its product range, both in chillies and other Asian produce (including okra, an Asian mainstay which is absent from current shipments because technically difficult) in order to position itself as a "full category" supplier. Pre-cooling capacities, both at the airport and in the field, should be brought to East African standards in order to guarantee quality. Finally, significant research should be put into modified atmosphere or other shipping techniques which would investigate the possibility for a conversion to sea freight in order to counter competition from countries such as Senegal.

5. STRATEGY

The present section of the report aims at identifying development priorities and merging them in an integrated action plan which may be included in the upcoming AgSSIP restructuring.

5.1 Strategic perspective

5.1.1 Ghana's strategic positioning

The current strategic positioning of Ghana's export horticulture can be best described as that of a successful market entry, holding its place by a low-cost offer on all market segments. This initial success is alarmingly fragile: it is threatened by dynamic trends in the target markets where there are shifts in industry structure and product innovations.

In order to secure and develop existing positions, Ghanaian exports must be repositioned on higher value product segments and distribution channels, as has been demonstrated in the recent fresh-cut fruit ventures as well as cut flower trials. Without this transition, growth will stagnate and then recede, or the industry will radically shift from a diversified grower base (mainly SME's and outgrowers), to an industrial production system dominated by a few multinational ventures.

A bold reaction that faces up to the competition is now needed. The openings in the market niches, such as "Organic/Bio-certified" or "Fair trade", may be appropriate for motivated entrepreneurs, but it must be clearly understood that these opportunities are dwarfed by mainstream volumes. Only a determined penetration of the growing mainstream markets for fresh produce will yield significant impacts in terms of employment and redistribution to the farmer level.

Although the challenges are daunting, Ghanaian farmers and the private sector have already demonstrated the entrepreneurial spirit necessary to penetrate several difficult markets. With appropriate support in terms of infrastructure and management capacity, this basic skill can be leveraged to build the Ghanaian horticultural export sector into a strong competitor on the mainstream fresh produce industry[8].

5.1.2 Strengths, Weaknesses, Opportunities and Threats

In recent years, a number of development strategies have been proposed for the horticultural export sector[9]. In the course of these studies, the horticultural sector has been the object of a detailed diagnostic effort. Their findings generally concur and are summarized in the SWOT model detailed in Table 5.1 overleaf.

[8] See Annex _ Eurofruit article: "Can Ghana become the next pineapple king?"

[9] JITAP strategy; PFF- F&V strategies on specific produce; The World Bank non-traditional export sector review; Technoserve strategy for the development of the export pineapple; The FAGE cluster development strategy; The task force for the development of horticulture. See Bibliography

TABLE 5-1 – GHANA Horticulture industry SWOT review

STRENGTH	WEAKNESSES
- Agro-climatic diversity - Competitive air freight and inland road transport logistics and other factor costs. - Access to diversified shipping alternatives - Diversified supporting industry base: input and equipment suppliers, packaging material manufacturers and distributors, accounting. - Structured professional environment: all the components are there! - Entrepreneur motivation	- Venture capital and investment capacity. - Weak industry strategic coordination. - Logistic infrastructure (mainly cold chain). - Extension capacities, both public and private. - Weak applied research capacity. - Local market for horticultural export crops needs to be developed.
OPPORTUNITIES	**THREATS**
- Growth export market for a series of products: papaya, sweet potato, vegetables, melons, limes. - Regional market for basic products such as citrus, chillies and other vegetables. - Local consumption in fruit and vegetable to be developed. - Capacity for strong positioning on an extensive product line. - Existing agro-industrial base in processed fruit. - AgSSIP and donor momentum in favour of industry.	- Introduction of new cultivars: MD2 pineapple and Golden papaya - Evolving food safety and traceability requirements. - Value-chain integration and consolidation by category managers. - New product developments and product diversification. - Adoption by the mainstream of value added technologies: pre-pack, pre-cut. - New logistics alternatives for highly perishable products: vegetables by sea.

5.1.3 Challenges

Based on recent reviews and our own findings, the following elements stand out as the main strategic challenges facing the Ghanaian horticulture export industry:

- The **pineapple industry** has developed the critical mass required to sustain both a low-cost northbound airfreight capacity out of Kotoka airport as well as the initiation of a reefer vessel service into Tema. This critical mass was developed through a low-cost positioning on both the air-freight and sea-freight pineapple market. This low-cost positioning is severely threatened by the introduction of new products and distribution channels.

- The sustainability of the 20.000 tonne **air freight** capability and its resulting competitive advantages, both in terms of freight costs and cargo space availability, will depend on the ability to replace declining low value pineapple export volumes with higher value produce. This process has begun with the growth of the asian vegetable sector and the introduction of the fresh-cut fruit industry, which have taken up space that was abandoned by air freight pineapple shippers shifting to sea freight. Further diversification will be required as the air freighted pineapple volumes continue to shrink with the improvement of the sea freight quality[10].

- In the case of **sea freight**, the existing critical mass achieved over the past years has enabled the creation of a regular reefer service into Tema (1-2 times per week). However, opportunities for cost savings are possible:

    - the current price differential with the Côte d'Ivoire on shipping to Europe is estimated at approximately $40 per tonne is a disadvantage to Ghanaian exporters and results from their limited negotiating power with the single reefer line. At present the Ghanaian export volumes are insufficient for an alternative service as is the case in Côte d'Ivoire where the OCAB and Dole lines compete. Further, the existing container shipping alternatives do not include essential pre-cooling and direct "cold-tunnel" container stuffing infrastructure that are critical for optimal quality and could create a valid alternative to the existing reefer routes.
    - the excessive temperatures in the export shed add costs, directly in reduced fruit quality and indirectly as the exporters prefer to deliver just in time for shipment in order to avoid storage.

    In conclusion, the ability for Ghana to further develop its sea freight critical mass, as well as the profitability levels necessary to secure long term capital investments, entails targeting the higher value segments presently occupied by Costa Rican MD2 in the fresh market. Otherwise, residual growth, and eventually decline of the Ghanaian fresh pineapple industry, will be linked with the speed at which the current trend towards higher quality produce develops.

[10] In North America, the introduction of high quality MD2 significantly reduced air freighted pineapple demand. This trend should materialize in Europe over the coming years.

- The fresh produce industry has a **limited innovation capacity** and is not able to keep up with trends in terms of improved varieties and high yield hybrids. Existing growing techniques are based on extensive systems with limited cost management requirements. Export yields are consequently low and quality is uneven. Current product development efforts are either "bootstraps" approaches, with limited technical support, or confidential private endeavours with limited industry-wide impacts. The current production strategy has contributed successfully to Ghana's market penetration effort as a low-cost alternative, but the sustainability of the industry will require the rapid introduction of adapted varieties (MD2, Golden papaya, okras and other vegetable seeds) and the transfer to farmers of adapted modern growing techniques (drip, sprinkler, netted protected fields). Otherwise, gradually contracting prices and increasing quality/traceability requirements, even on the ethnic produce market, will create an opportunity for competing origins. As an example, Senegal could develop extremely low cost sea freight capabilities for the asian vegetables, which would destroy Ghana's existing air freight cost advantage over Kenya. Another more urgent example is the introduction of the Golden papaya cultivar by Brazilian exporters, which can now be sea freighted and undercuts Ghana's low cost positioning on a market formerly supplied exclusively by air freighted produce.

- Ghana must face the challenges created by the stringent **quality and management performance norms** imposed by the now dominant European supermarket distribution channels. These standards not only cover the much publicized pesticide residue management/detection requirements or traceability systems, but also the overall capacity to mesh into the new integrated supply chains. Quality systems must be developed in the perspective of broader cost management, production planning and cold chain management skills and systems. The development must be seen as part of a full-service marketing proposition, which departs from Ghana's current positioning as a low-cost spot supplier to the wholesale distribution system.

- The current institutional framework covers most functions necessary to develop a functional **industrial cluster**, albeit the institutions have strong needs in terms of capacities and strategic information collection/dissemination. Institutions such as GEPC on the institutional side and FAGE on the private sector side have yet to dovetail and develop strong industry-wide leadership and coordination capabilities. These organizations equally have to strengthen their linkages with sector-specific trade associations. They finally have to find ways to include the contribution of the cluster's supporting industries and partners in terms of all the peripheral players that also have an interest in Ghanaian export success. Strong industry governance, focused on competitiveness and equitable growth, will be critical in order to efficiently manage the consequent donor and international funding resources that the horticulture industry is currently attracting. The failure to achieve such coordination usually results in the creation of artificially independent competing industry organizations, with little sustainable potential and a wasteful culture of blame.

- The **processing industry**, mainly focused on pineapple and citrus juice production, depends widely on the existing outgrower base. Quality is variable and this limits

capacity to reposition exports out of the low-end segment, particularly in the case of citrus. The lack of adequate quality is largely an extension issue: currently, the processors must bear the burden of organizing an extensive outgrower base and would greatly benefit from an improvement of the capacity of MOFA's crop extension services in that domain. Otherwise, industrialists will eventually resort to integrated production systems (in the more profitable fresh-cut and specialty juicing segments) or stay on the vulnerable low-end of the international market.

- **Local and regional market development** is too often ignored, mainly because of its informal nature. The local and regional market nevertheless form an integral part of the industry, not only as a channel for the marketing of non-exportable quality produce but equally as the basis for the development of competencies by the local growers, fed by increasing local consumer demand. Currently the produce marketing channels in Accra do not have access to proper infrastructure such as wholesale consolidating and distribution platforms which would organize distribution, both for the urban and regional markets.

5.1.4 Key strategic drivers

As the preceding analysis of market opportunities and competitive advantages indicates, significant export market penetration and product diversification by the Ghanaian horticultural sector is possible. However, this can be achieved through various competing configurations such as industrial plantations, exporter/producer SME's, exporter managed outgrower networks or farmer ownership models. The interaction and relative importance of these will significantly impact on actual income redistribution and promotion of local capacities.

Our recommendations have therefore taken into account a set of principles that will focus the strategy not only on strict marketing and financial success, but also on more fundamental competitiveness, capacity building and poverty reduction issues:-

- ***Smallholder competitiveness:*** Industry strategists differ on the capacity of outgrower systems to compete with integrated industrial systems. Traditional outgrower schemes structured around a private enterprise or "farmer owned models" have been successful in specific circumstances, often with important underlying public investments in infrastructure (collective irrigation systems, government owned post-harvest infrastructure, subsidized planting material for tree crops etc) or capacity building (crop extension, rural and technical training programs, institutional research programs aimed at outgrower production techniques, donor funded technical assistance). The creation of industrial systems on the other hand develops in a more passive environment created by government investment incentives such as tax breaks, duty exemptions and outright subsidies.

  The promotion of a competitive smallholder production requires a specific allocation of resources by government. In order to be sustainable, the focus should be put on developing a skilled outgrower base which can then become the building blocks of smallholder systems capable of competing on the world marketplace. Examples of such schemes are the Côte d'Ivoire's pineapple and mango industry, and specific product segments of Kenya's vegetable industry, based on outgrower production

systems. These systems, now essentially privately run, have their origin in government investments in initial rootstock, applied research, basic crop extension services, donor funded quality initiatives and investments in primary irrigation networks. The challenge for these systems remains building their capacity to adapt to market shifts, as is currently demonstrated by the Côte d'Ivoire and Ghana's pineapple outgrower systems which are imperilled by the marked transition of market preferences to the MD2 cultivar.

- ***Step by step equity build-up based on increasing value:*** Over-leveraging promising initiatives is detrimental to their sustainability and we found at least four clear examples of individual projects in Ghana stalled by excessive financial debt.

  Development efforts should focus on creating industry equity, with the private sector responsible for leveraging this equity on the open market (venture capital, bank financing etc). Industry equity must be understood as those elements that build-up goodwill and facilitate investment. For example, an investment by the government of Ghana in streamlining and improving the shipping infrastructure at the airport and the sea port will result in an immediate increase in value of idle capacity in cold store and sophisticated agricultural production capacity which would now be put to work. All existing growers would equally benefit as their ability to ship quality produce would be enhanced and their projected profitability would increase.

  Such reasoning can also be extended to the creation of an initial MD2 plant population, the installation of an efficient pesticide residue laboratory, the promotion of tissue culture competencies or the achievement by industry growers of an Eurepgap certification. In all of those cases, investment by government will increase global industry value and the individual firms' ability to generate capital. This holds equally true for the *farm ownership models,* which should be based on a gradual approach, in step with true stakeholder buy-in. Government investment in such projects should be allocated to the consolidation, through infrastructure or specific technical assistance, of demonstrated capacities by stakeholders to manage collective programs.

- ***Private sector mechanisms:*** In the end, the objective of government and donor programs will be to develop sustainable autonomous exporting entities, capable of managing their growth, and relying on the state for indirect facilitation and support. Assistance should therefore focus on formulas with strong stakeholder investment. Services and investment support should be oriented towards the inclusion of recurrent, maintenance and amortization costs in the export pricing strategy. Otherwise, the resulting scenario will be the selling off of "free" state investment in the form of "comparative" cost advantages (reduced prices), which will disappear once the goods have been fully amortized, or the initial knowledge base has been replaced by new technologies.

- ***Cooperation and clustering:*** Cooperation and clustering are not generated spontaneously but created and driven; usually the initiative appears from the interest of the firms involved. Specific projects can create such clustering initiatives: for example, stakeholders (including growers, exporters as well as associated services and institutions such as the port authorities, the shipping and forwarding companies and strategic industry input suppliers), perhaps led by an existing federating body such as

FAGE, should be involved in the design phases of strategic investments such as the airport and port fresh produce shipping facilities.

- ***Industry diversity and competition:*** Intervention in the sector should aim at promoting competing systems and therefore a certain level of diversity should be maintained. Currently, the smallholder pineapple production base is challenged by the shift to MD2. Without specific assistance, the important investments required will only be within the reach of integrated industrial concerns. An investment in an initial rootstock base will help small farmers keep their position in the marketplace and induce private concerns to invest in outgrower sourcing systems. The same diversity could be beneficial to the papaya industry which is currently centered on industrial plantations vulnerable to climatic and phytosanitary risks, to which a geographically diversified producer base is less prone. Project investment initiatives should aim to foster such diversity in production and export systems, with a specific attention to the protection of the smallholder base. In terms of services to the industry, public extension tools should be made available to both public and private extension systems.

- ***Innovation management:*** Innovation is the key to maintaining a competitive edge on the market. The slow identification of MD2 or the Golden papaya as a potential threat and the limited diversification of the industry as a whole are an indication of the efforts Ghana will have to deploy to catch up with industry leaders.

  Innovation management requires a strong integration between research capacities and the private sector, the latter more attuned with shifting consumer demands and new opportunities. Public initiatives should foster such public-private cooperation whilst supporting strong performers in terms of transferring research results to actual commercial programs.

  Innovations should be managed with a *portfolio approach*, mixing short term crop development with longer term projects, specifically those involving tree crops such as mangoes, grapefruit, avocado or grapes. A focus on short term results will yield immediate successes at best but will miss out on many potentially promising initiatives. A cause for this nearsighted development is the link of innovation resources with classical donor grants which must show results over three to five years, which usually cover the initial growth cycle of standard fruit crops. Innovation projects must therefore be revised to include substantial private sector involvement in order to carry-out programs once initial exterior grant money runs out.

- ***Data gathering and information dissemination:*** Program investments should put an equal emphasis on acquisition of knowledge and its subsequent dissemination. This is true for the collection of strategic information strategic data, which should be disseminated "cluster-wide" in order to focus stakeholder efforts. It is also important that public funded research results be made available quickly to growers and extension workers. The adaptation process of such information for quick dissemination will require specific investments which are often overlooked.

- ***Local and regional market development:*** Export industry will benefit from a thriving local and regional market. Export oriented programs tend to focus exclusively on export market conditions when local market trade-offs will sometimes

influence available supply from outgrowers. Although informal in nature, regional export opportunities can represent considerable income opportunities for growers. In some cases these will face global competition as is the case in the orange, potato, onion and carrot trade along the West African coast where European, North and South African origins compete.

5.2 AgSSIP intervention

5.2.1 Priorities

Short term activities should aim at consolidating Ghana's market share. This will be done by supporting actions that will enable Ghanaian exporters to reposition themselves quickly from their present low-cost supplier status to the higher value growth segments of the market.

In terms of industry development, this short term strategy translates into the following key objectives:

- *preserve* existing market share *and give a boost* to the industry's driving force, i.e. the **fresh pineapple and papaya industries**, by introducing new varieties (MD2 pineapple and Golden papaya), building the cold chain infrastructure necessary to efficient and competitive sea freight (containerized and reefer) and developing quality management capacities that will facilitate the integration of Ghanaian exporters into modern distribution networks (supermarket driven supply chains);
- consolidate the competitiveness of the **fresh vegetable sector** by improving shipping logistics at the airport (packing and pre-cooling capacities), developing the inland post harvest networks, increasing the yield of growers through improved seed stock and irrigation techniques, diversifying the product mix to include sweet potato and okra, and prepare the exporters for integration into the mainstream networks by developing extension tools, traceability systems and pesticide management capacities.
- assist **processing companies** in establishing a strong quality supply base by improving citrus growing practices,
- impel the **diversification** process on key products such as sweet potatoes, mangoes, vegetables (beans and peas) and melons through specific applied R&D programs focused on identified market requirements in terms of varieties, production timing, cost and productivity objectives,
- consolidate the emerging **horticultural cluster** through strategic information gathering, interpretation and dissemination, and the strengthening of the public-private collaboration.

5.2.2 Two year action plan

Reaching these objectives will require an integrated approach involving interventions in various fields. The main thrust will come from the private sector. However, the Government of Ghana can contribute to this development by investing in a series of actions that should contribute in setting the basis for future developments.

- improved planting material availability,
- logistics and post-harvest infrastructure,
- quality management and food safety systems,
- applied research and development programs,
- cluster building,

- support to farmer owned organizations.

This action plan does not cover all of the long term needs of a competitive value chain[11] and must be considered a pilot phase, laying the groundwork for subsequent AgSSIP phases, both in terms of infrastructure and of building up capacities. Tested approaches will aim to integrate national institutions, the private sector and the small farmers. It is therefore important that activities be closely monitored and evaluated in order to fine tune the various arrangements that will have been developed.

These proposed areas of intervention globally coincide with the proposals made by MOFA for the Agssip restructuring. The plan focuses on key benchmarks to be reached in the next two years. It also reworks the initial proposals in the perspective of a private-sector led initiative and the fostering of cluster effects, integrating the government and the industry in a joint coordinated effort.

Table 5-2 presents a summary of the proposed action plan.

	Project Estimated costs
1. Improved planting material	$2,760,000
2. Food safety and quality management	$680,000
3. Innovative applied R&D	$1,070,000
4. Pre/Post harvest management	$2,795,000
5. Cluster building	$515,000
6. Farm Ownership model	$1,000,000
7. Support to implementation and strategic monitoring	$700,000
TOTAL COST	$9,520,000

Further details are provided in the tables 5.2.1-5.2.7overleaf, including the estimated cost per activity as well as a time frame for implementation. For each of the seven main components, expected results are proposed and implementation issues are identified in the table and further details are in the text following the tables. Specific terms of references for the main proposed components have been included in an annex to the present document.

[11] For example, improving professional education, investment promotion, fundamental research and development, improvement of the road network etc. are all key issues that can only be addressed superficially in a two-year program.

GHANA

Proposals for AgSSIP intervention in horticulture exports

PRELIMINARY DOCUMENT - FOR DISCUSSION ONLY

(Activities and costs are indicative and subject to modification)

	Activity level	Project costs	Time frame (quarters)																			
			03-2003			04-2003			01-2004			02-2004			03-2004			04-2004			01-2005			02-2005		
			JL	AU	SE	OC	NO	DE	JA	FE	MR	AL	MA	JN	JL	AU	SE	OC	NO	DE	JA	FE	MR	AL	MA	JN
1. Improved planting material		**2,760,000 $**																								
1.1 MD2 - Rapid dissemination program		**2,390,000 $**																								
Feasibility study	25 dys	20,000 $	X	X	X																					
Contractual framework	25 dys	20,000 $				X	X	X																		
Plantlet delivery	10 million	2,000,000 $								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Research on husbandry and post harvest of MD2		200,000 $								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Monitoring of distribution and financing	20 months	150,000 $					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.2 Other planting material from germplasm		**220,000 $**																								
Feasibility and contractual framework	25 dys	20,000 $							X	X	X															
Sweet potato (Jewel, Centennial, Bosbok)	25 ha	50,000 $										X	X	X	X	X	X	X	X	X	X	X	X			
Golden papaya	25000 plants	50,000 $										X	X	X	X	X	X	X	X	X	X	X				
Passion fruit (purple, yellow)	15000 plants	50,000 $										X	X	X	X	X	X	X	X	X	X	X	X			
Monitoring	16 months	50,000 $									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.3 Seed production		**150,000 $**																								
Open - pollinated cultivar selection																										
Field trials		50,000 $				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Training in seed production		15,000 $													X	X	X				X	X	X			
Hybrid seed identification																										
Cost-share field trials		50,000 $				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
Contractual framework and monitoring		25,000 $		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Information and dissemination of results	Quarterly report	10,000 $									X			X			X			X			X			X

EXPECTED RESULTS

- Ghana pineapple exporters ship MD2 in consistent quantity with an improved margin.
- Ghana outgrower base develops a sustained MD2 production capacity.
- Ghana increases market share significantly on high value segments.
- Ghana develops a world class, private sector led, tissue culture capability.
- Ghana develops experience in the multiplication of other high value crops.
- Ghana identifies and distributes new open-pollinated cultivars.
- Ghana adopts improved hybrid seed varieties.
- Ghana cluster develops an efficient cost-share field trial methodology.

IMPLEMENTATION STRATEGY

- MD2 and other tissue culture programs to be managed by an independent monitoring unit with no vested interest in tissue culture or pineapple exports
- Open tender procurement promoting competition between tissue labs.
- Matching grant and financing mechanism for MD2 adapted to all existing Smooth Cayenne growers.
- Integration of national research and growers in seed selection and field trials.
- Seed field trials managed by a joint venture between VEPEAG & CARE.

GHANA
Proposals for AgSSIP intervention in horticulture exports

PRELIMINARY DOCUMENT - FOR DISCUSSION ONLY
(Activities and costs are indicative and subject to modification)

	Activity level	Project costs	Time frame (quarters)																			
			03-2003			04-2003			01-2004			02-2004			03-2004			04-2004			01-2005			02-2005		
			JL	AU	SE	OC	NO	DE	JA	FE	MR	AL	MA	JN	JL	AU	SE	OC	NO	DE	JA	FE	MR	AL	MA	JN
2. Food safety and quality management		**680,000 $**																								
2.1 Pesticide regulations		**70,000 $**																								
Study/Seminar :																										
Harmonized pesticide list for export crops		20,000 $	X	X	X																					
Benchmarking analyses - export crops		50,000 $					X			X			X				X			X			X			X
2.2 Pesticide training		**230,000 $**																								
Study/Seminar:																										
Best practices for export crops		50,000 $	X	X	X																					
Best practices guidebook & poster		25,000 $				X	X	X																		
Traceability guidebook		25,000 $							X	X	X															
Pineapple guidebook & poster		15,000 $							X	X	X															
Chillies guide & poster		15,000 $										X	X	X												
Asian Vegetable guide & poster		15,000 $													X	X	X									
EurepGAP monitoring team and certification		75,000 $					X			X			X				X			X			X			X
Training events		10,000 $					X			X			X				X									
2.3 Certified BLP Laboratory		**380,000 $**																								
Trip to Dakar - Ceres Locustox lab		5,000 $		X																						
Feasibility study - Conversion of GSB lab		25,000 $		X		X	X																			
Technical assistance and training		50,000 $					X	X	X																	
Equipment		200,000 $							X	X	X	X	X	X												
Recurrent operating costs - startup phase		100,000 $													X	X	X	X	X	X	X	X	X	X	X	X

EXPECTED RESULTS

- Ghana harmonizes its pesticide guidelines with EU recommendations.
- Benchmarking on residue levels has been carried out and taken into account by authorities.
- Guidebooks and posters on Good Ag Practices are published and disseminated to growers.
- A Ghanaian laboratory acheives BLP certification in residue testing protocols, recognized by EU authorities and importers.

IMPLEMENTATION STRATEGY

- Involvement of the EUREP organization in implementation.
- Coordination with NRI, COLEACP, USAID and other programs.
- Capitalize on lessons learned in other lab implementation projects.
- Aim long term financial sustainability of laboratory activities.

GHANA
Proposals for AgSSIP intervention in horticulture exports

PRELIMINARY DOCUMENT - FOR DISCUSSION ONLY
(Activities and costs are indicative and subject to modification)

	Activity level	Project costs	Time frame (quarters)																			
			03-2003			04-2003			01-2004			02-2004			03-2004			04-2004			01-2005			02-2005		
			JL	AU	SE	OC	NO	DE	JA	FE	MR	AL	MA	JN	JL	AU	SE	OC	NO	DE	JA	FE	MR	AL	MA	JN
3. Innovative applied R&D		**1,070,000 $**																								
3.1 Innovation cost share fund		**1,070,000 $**																								
Field research contractual framework	30 dys	20,000 $	X	X	X																					
Mango initiative: grafted varieties, production monitoring, anthracnose and other pathologies, productivity, intensification techniques		200,000 $				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Industrial citrus: fertilization, yields, new cultivars, brix optimization						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Irrigation: drip irrigation, micro - jet, fertigation, outgrower systems		200,000 $				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
IPM and crop protection: shade houses, nurseries, outgrower systems		150,000 $				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
New products: melons, passion fruit (yellow and purple), cut flowers, carambola, pithaya, pommegranate, sweet potato, beans, peas, miniveg		300,000 $				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
New cultivars: golden and maradol papaya, various chillies, hybrid okras, indian vegetables		100,000 $				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Monitoring and evaluation		50,000 $					X			X			X			X			X			X			X	
Dissemination of results		50,000 $						X			X			X			X			X			X			X

EXPECTED RESULTS

- Ghana's private associations and institutional develops a capability in applied research focused on market led innovation.
- Mango introduction program on course.
- Significant innovations being tested in partnerships involving the producers, industry suppliers (seeds and inputs) and institutional research.
- Ghana horticultural cluster develops an effective on-farm trial methodology.
- Innovations are transferred to mainstream producers.

IMPLEMENTATION STRATEGY

- Monitoring and coordination to include main cluster organizations.
- Key sectors to be covered are identified through a strategic market development plan.
- Cost sharing basis and integration of EDIF grants.
- Project by project selection based on merit and previous performances.
- Substantial involvement by the private sector including growers, processors, input suppliers, importers etc.
- Ensure outgrower integration in research system.
- Dissemination of test results to be the responsibility of cluster organizations.

GHANA
Proposals for AgSSIP intervention in horticulture exports

PRELIMINARY DOCUMENT - FOR DISCUSSION ONLY
(Activities and costs are indicative and subject to modification)

	Activity level	Project costs	Time frame (quarters)																			
			03-2003			04-2003			01-2004			02-2004			03-2004			04-2004			01-2005			02-2005		
			JL	AU	SE	OC	NO	DE	JA	FE	MR	AL	MA	JN	JL	AU	SE	OC	NO	DE	JA	FE	MR	AL	MA	JN
4. Pre/Post harvest management		**2,795,000 $**																								
4.1 Inland post harvest network		**175,000 $**																								
Concept definition study		15,000 $	X	X		X	X																			
Geographic Information Database		20,000 $				X	X	X																		
Technical specs		15,000 $					X	X																		
Packhouse - Alpha versions		75,000 $						X	X	X																
Technical guidance, monitoring and evaluation		50,000 $									X	X	X	X	X	X	X	X	X							
4.2 Perishable air freight cargo village		**1,500,000 $**																								
Stakeholder trip - Nairobi cargo village		25,000 $		X																						
Technical design		75,000 $				X	X																			
Fuel line to cargo apron		50,000 $				X	X																			
Connecting roads and secure access points		100,000 $					X	X	X																	
Packing sheds + handling equipment	2000 m2	700,000 $						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Cold store + handling (ball decks, scales)	300 m2	500,000 $							If necessary									X	X	X	X	X	X	X	X	X
Project management and supervision		50,000 $		X		X	X	X	X	X	X	X	X	X	X											
4.3 Sea freight terminal - Tema Shed 9		**990,000 $**																								
Technical design		50,000 $	X	X		X																				
Renovations and structural reinforcements		200,000 $					X	X	X	X	X	X	X	X	X	X	X	X	X	X						
Cold store and pre-cooling		500,000 $					X	X	X	X	X	X	X	X	X	X	X	X	X	X						
Handling equipment (forklifts, scales)		150,000 $					X	X	X	X	X	X	X	X	X	X	X	X	X	X						
Gensets	2 units	40,000 $													X	X	X	X	X	X						
Project management and supervision		50,000 $	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
4.4 Agro-industrial training		**130,000 $**																								
FAGE post harvest training package		50,000 $				X	X	X	X	X	X															
FAGE cost management training package		50,000 $				X	X	X	X	X	X															
On site training (Kenya, Mexico, Senegal)		30,000 $										X	X	X				X	X	X				X	X	X

EXPECTED RESULTS

- Air cargo and Sea freight terminals are completed and built to industry expectations.
- Multi-purpose post-harvest sheds are built to industry specs.
- Grower organizations develop management capabilities of common infrastructure.
- Quality of outgrower production is improved.
- Extension services are improved through regional packhouse network.

IMPLEMENTATION STRATEGY

- Priorisation of urgent construction works: fuel line to cargo apron, access to PACH cold store, protection of the cargo-delivery zone at the airport, ventilation of shed 9.
- Integration of cluster stakeholders in design process.
- Modular build-up of infrastructure through continuous process.
- Independent from current airport master plan studies.

GHANA
Proposals for AgSSIP intervention in horticulture exports

PRELIMINARY DOCUMENT - FOR DISCUSSION ONLY
(Activities and costs are indicative and subject to modification)

	Activity level	Project costs	Time frame (quarters)																			
			03-2003			04-2003			01-2004			02-2004			03-2004			04-2004			01-2005			02-2005		
			JL	AU	SE	OC	NO	DE	JA	FE	MR	AL	MA	JN	JL	AU	SE	OC	NO	DE	JA	FE	MR	AL	MA	JN
5. Cluster building		**515,000 $**																								
5.1 Strategic information gathering and dissemination		**190,000 $**																								
Market studies - new products, retail market		50,000 $																								
Market information - weekly price and trends		20,000 $																								
Trade statistics		20,000 $																								
Port of entry information network		10,000 $																								
Competitiveness benchmarking		20,000 $																								
Geographic information system		20,000 $																								
FAGE/GEPC web site and online newsletter		15,000 $																								
FAGE/GEPC newsletter		15,000 $																								
FAGE/GEPC - Technical briefs		20,000 $																								
5.2 Conferences and events		**60,000 $**																								
Mango and papaya seminar		15,000 $	X																							
Sea freight training seminar		15,000 $				X	X																			
New market opportunities seminar		15,000 $				X	X																			
Competitiveness seminar		15,000 $					X	X	X																	
5.3 Cluster establishment		**265,000 $**																								
Equipment		15,000 $	X																							
Recurring costs - Cluster management		50,000 $				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Recurring costs Crop extension services:																										
Regional horticulture specialists		100,000 $						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ongoing Training - Regional Horticulture specialists		50,000 $						X			X			X			X			X			X			X
Institutional study - "Foundation - Ghana"		50,000 $				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

EXPECTED RESULTS

- Increased information dissemination and improved competitiveness monitoring.
- Improved stakeholder awareness of key competitive issues.
- Improvement of crop extension services along industry demands.
- Definition of a sustainable venture and innovation entity.

IMPLEMENTATION STRATEGY

- Joint FAGE and GEPC collaboration and cluster coordination unit.
- Focus information gathering and analysis on iterative competitiveness monitoring and assessment.
- Integrate MOFA crop extension services into the horticultural cluster.

GHANA

Proposals for AgSSIP intervention in horticulture exports

PRELIMINARY DOCUMENT - FOR DISCUSSION ONLY

(Activities and costs are indicative and subject to modification)

	Activity level	Project costs	Time frame (quarters)																			
			03-2003			04-2003			01-2004			02-2004			03-2004			04-2004			01-2005			02-2005		
			JL	AU	SE	OC	NO	DE	JA	FE	MR	AL	MA	JN	JL	AU	SE	OC	NO	DE	JA	FE	MR	AL	MA	JN
6. Farm Ownership model		**1,000,000 $**																								
6.1 Technical assistance to the formation of FOM		**400,000 $**																								
Technical and Post harvest service centers		200,000 $																								
Product development joint ventures		200,000 $																								
6.2 Financial instruments		**600,000 $**																								
Collective post harvest equipments		250,000 $																								
Collective irrigation networks		150,000 $																								
Collective pesticide distribution centers		100,000 $																								
Collective nurseries and seed distribution		100,000 $																								

EXPECTED RESULTS

- Development of new applications of the Farmer Ownership Model.
- FOMs focused on crop and logistic services.
- FOMs focused orisk sharing in new crop development.
- Improved farmer collaboration and gradual build-up of human and financial capital.
- New governance frameworks developped.

IMPLEMENTATION STRATEGY

- Base FOMs on sound market and financial analysis.
- Focus on existing grower associations and their expressed collective needs.
- Apply FOM model on new crop introductions or alternate production zones to outgrower production systems.
- Strong support of FOM managers by technical and management expertise.
- Initial funding not to over-leverage vested equity.

GHANA
Proposals for AgSSIP intervention in horticulture exports

PRELIMINARY DOCUMENT - FOR DISCUSSION ONLY
(Activities and costs are indicative and subject to modification)

	Activity level	Project costs	Time frame (quarters)							
			03-2003	04-2003	01-2004	02-2004	03-2004	04-2004	01-2005	02-2005
			JL AU SE	OC NO DE	JA FE MR	AL MA JN	JL AU SE	OC NO DE	JA FE MR	AL MA JN
7. Support to implementation and strategic monitoring		**700,000 $**								
7.1 Steering committees		**400,000 $**								
SC coordination assistance		400,000 $								
7.2 Strategic monitoring		**300,000 $**								
IFPRI socio-economic & competitiveness benchmarking		100,000 $								
On-going strategic appraisals		200,000 $								

EXPECTED RESULTS

- Program is fully delivered on time and in budget.
- Strategic focus is enhanced throughout project implementation.
- AgSSIP II program objectives are clearly defined.

IMPLEMENTATION STRATEGY

- Committees: Strategic, Horticultural, FOM creation, Infrastructure and Food safety
- Coordination assistance defined and put to tender as soon as possible.
- IFPRI commissionned to develop a benchmarking framework that can be updated on a continouous basis by stakeholders and AgSSIP monitoring.
- Strategic appraisals aim to improving strategic focus of implementation team and stakeholders on competitiveness issues.

Component 1 - Improved planting material:

This component is aimed at accelerating the diversification process as well as repositioning existing exports.

1.1 MD2 rapid dissemination program: The improved planting material program's main component would be the full scale introduction of the MD2 cultivar into Ghana. This activity is justified by the critical prevailing market situation on the fresh and processed pineapple market, where brands supplying MD2 are gaining market share at an ever accelerating pace.

This program would aim to provide over two years a sufficient number of plantlets to permit Ghanaian producers to effectively convert their production from the existing Smooth Cayenne variety to the MD2 cultivar. The program would source plantlets from existing private and institutional initiatives through an open tender contract to supply plantlets to selected participants at a pre-determined price.

A matching grant facility is proposed, with advantageous conditions for small holders. This grant facility could be supplemented by a financing scheme involving EDIF and the ADB.

1.2 Other planting material from germplasm: The open tender/matching grant system developed for MD2 would be extended to other promising diversification crops where Ghana does not have access to adequate disease-free planting material. Such crops that could be included through discussion with industry stakeholders could be: sweet potato, purple passion fruit, golden papaya, ornamental plants etc.

1.3 Seed production: In order to improve access to higher quality seeds and increase producer awareness of the productivity of hybrids, a specific seed evaluation program would be conducted through research station and field trials involving industry stakeholder. The objective would be to source, test and disseminate performance results of an extensive line of open-pollinated and hybrid seeds. The findings following these tests would help producers select the highest performing cultivars and adjust their seed sourcing strategy. These tests would be funded on a matching grant basis and would be managed through joint collaborative ventures between industry associations, institutional research and, if possible, the seed companies.

Expected results: This program is expected to give a strong boost to the repositioning of Ghanaian exports on the higher value MD2 pineapple segment, setting the stage for further industry growth.

The same impact should be expected in other product lines which will shift their production to higher yielding and more market adapted cultivars. In the case of papaya, the shift to the golden variety, capable of withstanding sea freight, should prove to be a breakthrough and result in significant increases over the mid term as new plantations enter production.

Another more structural impact would be the creation of a national capacity in tissue culture and multiplication which will prove strategic in maintaining a competitive edge.

Finally, the development of an efficient cost-share field-trial methodology, involving growers, exporters, institutional research and the seed companies would contribute greatly to Ghana's ability to compete, reducing both development costs and the delay in getting new promising varieties to the market.

Implementation: The proposed MD2 program (Component 1.1) is a complex operation which necessitates a strong contractual framework as well as strict monitoring in order to make sure new cultivars reach their expected destination. A specific study should therefore be commissioned to establish the definitive program, in collaboration with existing labs, industry stakeholders and financial institutions such as ADB and EDIF.

Given the strategic importance of the MD2 program and the relatively short time window provided by the AgSSIP extension, it is proposed that MOFA contract out the implementation to an independent body with strong management and field coverage capability. Terms of reference would include:

- evaluation and processing of demands from growers,
- securing the financial arrangements with program financiers,
- contracting process with the tissue labs,
- monitoring of the transfer of plantlets to the field,
- monitoring actual production results.

As discussed above (Component 1.2), the MD2 framework could be extended to other products in which germplasm multiplication is appropriate and possible, and the implementation can be monitored by the same entity.

In the case of field trials, a specific study, defining a collaborative field trial methodology (grower and site selection, experimental set-up, methods of monitoring and reporting), would be necessary. This methodology would have to be adopted by growers requesting funding.

The funding mechanism for the seed selection program (Component 1.3) need not require the creation of a specific financing instrument and could be included in Agssip's existing matching grant fund, with specific stakeholder (cluster) involvement in the processing and approval of project proposals.

Component 2 - Food safety and quality management:

Food safety and quality certification issues are another threat to the Ghanaian fresh produce export industry. Existing programs have been set-up to provide support to ACP or specifically Ghanaian enterprises in order to conform to new regulatory requirements. The risk of overlap is substantial and it is therefore critical that AgSSIP complement existing interventions. Currently many programs cover the quality issue: the PIP program, managed by COLEACP, as well as specific donor initiatives managed by MSU, AMEX, Technoserve, NRI and CARE. These programs are essentially oriented towards technical assistance and training seminars, some have funded. The present recommendations are designed to complement these initiatives.

2.1 Pesticide regulations: AgSSIP would contribute to a specific study and stakeholder coordination meetings (both private and institutional) that would aim to establish a definitive pesticide list for all fresh produce export crops. The existence of such an industry accepted list, coherent and up to date with EU regulations, is a prerequisite for the certification of national enterprises and should be produced rapidly. In addition to this activity, AgSSIP should fund a program in which the existing GSB lab would be awarded a contract for a set of spot-checks, over a full year, on actual fresh produce exports. This program would be devised and approved by industry stakeholders. GSB results would be regularly benchmarked against results obtaind by BLP[12] certified labs, in the region (CERES LOCUSTOX/Dakar) or in Europe (TDL Leatherhead/UK).

2.2 Pesticide training: AgSSIP would contribute specific funds which would be made available to existing quality initiatives in order to ensure that training material is published and disseminated extensively. Support would be granted by AgSSIP to programs which, through their fieldwork, would be in measure of producing documents such as: best practice guidebooks and posters, traceability management system manuals (specific forms), pineapple and vegetable production and post-harvest guidebooks and posters. This complementary funding would give the opportunity to produce high quality illustrated material which is key to the dissemination of new technical concepts. It would also permit them to carry-out regional training events, in addition to their basic programs. AgSSIP resources would also be allocated to the funding of a EUREPGAP monitoring initiative, where representatives of this industry body would be involved directly in developing quality and documentation approaches, specifically devised to ensure certification to smallholder systems.

2.3 Certified BLP laboratory: Successive grants have permitted GSB to create a pesticide residue detection laboratory. Technical assistance and training is currently being provided to lab staff. However, the laboratory is not yet capable of funding its recurrent costs, particularly the chemical reactants necessary for precise detection work, in accordance with existing minimum residue limits. Further, the laboratory is not yet certified to the BLP standard, which means that any analysis produced by the lab will have to be counter-tested by a certified lab to be deemed valid by an importer. This greatly reduces the lab's ability to market its services and it is recommended that AgSSIP fund actions that would lead towards certification. Activities proposed involve: a trip to Dakar to visit the existing Ceres Locustox lab which recently achieved certification; a full feasibility study evaluating the required steps in order for the GSB lab to reach full BLP certification (in complement of existing FAO and COLEACP studies); a provision for additional equipment that may prove to be necessary to

[12] Best laboratory practices

secure compliance; a financing of the lab's recurring costs for a start-up phase in order to help it secure funding for adequate inventory of chemical reactants and lab supplies.

Expected results: At the end of the program, it is expected that a harmonized pesticide list that is in line with EU requirements will be published. The benchmarking analysis will have given the Government and industry stakeholders a more precise understanding of pesticide control priorities. The guidebooks, posters and overall intensified training efforts, will have disseminated a set of strategic pesticide and crop management techniques as well as adapted traceability management systems to the growers. The implication of EUREPGAP in the development of quality management guidelines for smallholder based systems could result in giving formerly excluded firms access to this important industry certification. Finally, having the GSB lab achieve BLP certification will give Ghanaian producers and exporters access to on-site analytical capabilities which will prove critical in demonstrating their ability to manage the food safety issue with adequate due diligence.

Implementation: Implementation of the food safety and quality management component would be contracted out by AgSSIP through specific implementation protocols with the executing agencies and/or the GSB lab. The actions financed by AgSSIP should mesh with existing programs and be discussed at the AgSSIP steering committee set-up to ensure coordination of quality oriented interventions.

Direct collaboration from EUREPGAP should be sought by stakeholders and supported financially, at least in part, by AgSSIP, in order to get a buy-in from that important certification body.

Attention should be given in ensuring that GSB capitalizes on recent lab implementation, particularly the Dakar based CERES LOCUSTOX which should provide useful first-hand experience in setting up a certified lab in the West African environment. The objective of the GSB lab subcomponent is to aim for long term sustainability of this strategic asset. Supporting programs should therefore require full cost accounting in order to estimate the portion of the labs operation which should be subsidized by AgSSIP in subsequent phases.

Component 3 - Innovative applied research and development:

3.1 Innovation cost-share fund: In order to bridge the gap between Ghana and other leading origins, AgSSIP would fund a program of cost-shared applied research and development. The component would draw, where possible, on the existing expertise in the agricultural research system in fields such as tissue culture and pathology. A balance must be struck between the funding of applied, near-market, research where cost sharing is appropriate, and the less restricted longer-term view of research contributing to a more general benefit.

At its core, the program would resemble the existing AgSSIP program managed by CRI, with the difference that an emphasis would be put on a collaboration of both institutional and private sector resources. Further, AgSSIP would focus grants resources on areas requiring specific attention in the short term, and that would subsequently set the stage for further research work. Suitable sectors for investigation would be defined with cluster stakeholders, but the consultants suggest the following priority areas:

- a **mango initiative** should be promoted that would support:

    - the introduction of certified grafted commercial varieties (tommy atkins, haden, kent, keitt and palmer);
    - the creation of a professional nursery network,
    - an evaluation of regional sensitivity of the mango crop to anthracnose and other pathologies and contaminations;
    - the development of pruning and fertilization protocols enhancing productivity;
    - the introduction of intensification planting systems similar to those developed by Brazil, Israel and South Africa.

    This initiative would include the sourcing of selected planting material with certified sources in West Africa or abroad as well as the import of specific technical competencies (CIRAD, South African, Brazilian and/or South African research bodies and universities).

    It must be noted that given the complementary nature of the Ghanaian production calendar with South Africa and Israel, such support should be facilitated, and could even take the form of private partnerships with Ghanaian producers. As explained previously, focus should be put on systems that could be readily transferred to Ghanaian smallholders or SME's (technically rather than capital intensive).

- **Industrial citrus** should be an area of concern and contacts should be made with existing processors in order to develop a program aimed at improving yields and brix levels through improved fertilization and/or the introduction of new cultivars. Other research work could involve the development of a citrus oil industry: an evaluation of oil content of the existing citrus production and the evaluation of its marketability.

- **Irrigation techniques** need to be diversified and pilot experiments involving the introduction of drip systems (vegetables), micro-jet systems (fruit crops such as papaya and mango), fertigation protocols, in versions adapted to smallholder and SME capacities, need to be carried out to raise the productivity and quality levels of existing production.

- **Integrated pest management** techniques need to be tested and adapted to local conditions as a complement to the quality management initiative. Tests aiming at defining economical pesticide treatment thresholds, adapted field scouting methods and mechanical pest control structures, especially in the case of nurseries (nets, shade houses, substrate disinfection) should be conducted to adapt existing techniques to the Ghanaian environment and to smallholder capacities.

- **New product and cultivar introduction** should be at the core of this fund's priorities. New products with strong potential should be the object of on farm trials as well as institutional benchmarking tests. They would involve both short and long cycle productions: melons, passion fruit (both purple and the yellow variety used for juicing), cut flowers, avocado, grapefruit, carambola, pomegranate, sweet potato, beans, peas, golden and maradol papaya, various chillies (jalapeno, habanero, scotch bonnet and others), hybrid okras and Indian vegetables. Preliminary results on these product lines could orient subsequent AgSSIP programs.

3.2 Field innovation contractual and monitoring framework: The objective of this innovation program is not only to scale up existing less formal trials but also serve the development of a true private/public innovation framework, engrained in cluster dynamics. This framework would secure a contractual system that would help define, value and secure actual contributions by cluster stakeholders. It would also include standard implementation and monitoring procedures that would place a particular focus on the capitalization of knowledge generated by such experiments: definition of objectives, rigorous experimental protocol definition, selection of experimental sites and private sector participants against a pre-established check-list, pre-set evaluation stages and report formats, structured result database.

3.3 Dissemination of results: In order to ensure full capitalization of research results, a specific subcomponent has been included in order to provide for the resources necessary for the communication of research results. These would take the form of illustrated technical briefs, produced and disseminated in print and stored on the internet.

Expected results: Primarily, the program is expected to lead to the acquisition of specific technical knowledge in strategic domains such as crop diversification, new techniques and so on. Further, the program will strengthen the cluster organizations in developing applied research activities based on market-oriented objectives. New partnerships and collaboration should develop amongst producers, industry suppliers (seeds, inputs, equipment) and institutional research. A specific dissemination component should facilitate the transfer of newly developed knowledge to the mainstream growers not directly involved in the projects. This on-farm trial approach should, if proven successful, significantly impact on the design of AgSSIP's subsequent phases.

Implementation: The program should be managed by a specific committee which would include all cluster stakeholders involved or concerned by competitive innovations in the horticulture industry. Key sectors to be promoted by the program should be identified beforehand based on market-related objectives (product diversification, increase in cost competitiveness, end-market quality requirements etc). Projects would be financed on a cost-

share basis. Individual project resources could be complemented by the EDIF grant facility. Once key sectors are defined, project by project selection should be based on technical merit and previous demonstrated performances, the integration of smallholder-specific issues in the research programs and the provisions for knowledge capitalization and dissemination. Actual fund disbursements would be managed as a part of the existing AgSSIP matching grant facility and should not warrant any specific administrative arrangements.

Component 4 - Pre-post harvest management:

4.1 Inland post harvest network: Post-harvest activities in the fresh vegetable sector, particularly for systems involving the consolidation of smallholder production, need to be significantly improved if Ghana is to progress from its existing position as a low-end supplier. It is proposed that AgSSIP fund the construction of a pilot network of packing and consolidating centers, at strategic locations in the existing growing areas. The initial activity of this program would be to carry-out in collaboration with VEPEAG a study aimed at establishing the focal points where collection networks converge (geographic information database) as well as designing the plant layouts and the cost recovery management system.

Services provided by the centers could cover the following: consolidation platform prior to shipment to the airport, plastic harvest crate service (leasing, cleaning and storage), sorting and packing zone, paper box storage, certified weight tickets, safe pesticide storage, technical information dissemination activities (information postings, training courses, basic documentation). The design should also provide for the extension of the centers' activities to pre-cooling and air pallet consolidation. Once built, the management of these centers would be transferred by AgSSIP to VEPEAG, with technical assistance and monitoring provided by a specialized NGO. Based on monitoring reports and consultations, this initial "alpha version" design would be improved upon and built in newly targeted regions during subsequent AgSSIP phases.

4.2 Perishable airfreight cargo village: Investments in the airfreight cargo village would aim to provide an infrastructure adapted to the perishable nature of existing exports. Further, the project should take into account the industry's future growth potential and provide for extension of the facilities, as well as the integration of existing and future private projects.

The design phase of this program should include a visit by cluster stakeholders (including GAA) to Nairobi Jomo Kenyatta airport (at least 8 different independent installations in the airport area) so they better understand the design alternatives available to them. This visit would be followed by the development of the technical design of the facility. This design should take into account existing inefficiencies:

- the absence of a roofed consolidation area capable of protecting export produce from the rain during off-loading, pallet-building, weighing and ramp-side storage;
- the need to build an underground fuel line to the cargo area apron in order to permit the parking of cargo carriers near the cargo terminal, thus reducing the hauling distance to the aircraft – currently, cargo aircraft must park in the passenger terminal zone in order to have access to the fuel mains, inducing a 800 m haul (sometimes under rain);
- the unused capacity of the existing cold stores of the Perishable Airfreight Cargo Handling (PACH) center, located in the immediate vicinity of the cargo village, but currently walled out and with no direct access – the opening of a direct and secure connexion between PACH and the cargo village would give growers the opportunity to pre-cool highly perishable produce and improve quality;
- the absence of a packing facility with direct access to the consolidation and pallet-building area – the existing VEPEAG center is too far from the cargo village, and adds a costly and time consuming handling of produce when sorted produce must be trucked to the cargo area;
- currently, pre-cut produce exporters have had to set-up their own airport cold storage facilities – these are makeshift installations (converted reefer containers) with limited efficiency and capacity .

Ultimately, the development plan could adopt a phased approach, depending on priorities established by the stakeholders. For example, the installation of a roofed consolidation area is a priority, as well as the provision of a dedicated and secure packing area for the vegetable exporters. In the case of cold storage, it could be decided that this service could be provided initially by opening a secure access, from the cargo zone to the existing PACH facility. Further investments in cold storage could be made under a subsequent phase of AgSSIP.

4.3 Sea freight terminal – Tema shed 9 (see annex for specific TORs): The improvement of sea freight capabilities are to be carried out with the following objectives:

- to provide storage conditions that are adapted to the maintaining the quality of pineapple shipments;
- to give exporters the opportunity to develop container shipments through access to pre-cooling and cold stores adapted to efficient container stuffing;
- to facilitate the development of non-pineapple sea freight exports (papaya, melon, mango) by equipping the infrastructure with basic equipment for on-site container stuffing.

The proposed intervention would be therefore be for AgSSIP to:

- finance the modernization of Shed 9 (segregation from regular cargo area, ventilation equipment, structural reinforcements, addition of handling and weighing equipment);
- to ensure proper ventilation of the sea freighted pineapple storage areas;
- finance the construction of a cold store for the pre-cooling of produce and efficient container stuffing;
- equip the cooling facility with a pair of Genset units[13] to provide for on-location pick-up of highly perishable pre-cooled produce such as papaya, mango and melon.

This infrastructure program should be preceded by a technical design study that would involve SPEG and other industry stakeholders. This technical study should take into account the post-harvest and shipping requirements of MD2, which is expected to need specific cooling protocols due to its high sugar content. In view of its experience, management of the investments would be entrusted to SPEG, with a technical assistance of a local NGO in order to adapt procedures with quality control, equipment maintenance and cost recovery requirements.

4.4 Agro-industrial training: In general, it is noted that post-harvest knowledge is limited and little disseminated. Past training efforts[14] should be intensified and a formal training

[13] Gensets are diesel fuelled electricity generators that are clipped on a reefer container in order to keep them in operation during inland transport. Their use is critical in the case of produce such as melons, mango and papaya which must be cooled quickly upon harvest and cannot sustain storage or transport at tropical ambient heat levels prior to sea shipment.

[14] The postharvest handling "train the trainers" workshop, funded through the Market Access Working Group of CCARD, was successfully held from September 2-4, 2002 in Accra, Ghana. Through effective collaboration between employees of the U.S. Department of Agriculture, Ghana's Ministry of Food and Agriculture, AMEX International, the University of

system be set-up to train middle management in post-harvest and cost management, both areas critical in establishing profitability. It is also proposed that leading technicians be awarded on-site training opportunities in leading countries such as Kenya (pre-pack and cut flowers), Mexico (mango), Morocco, Israel, Brazil (papaya) or Senegal (green beans) etc.

Expected results: The main impact will be a general enhancement of Ghana's post-harvest infrastructure, leading to immediate gains in quality and profitability by the industry. An important allocation of resources to the extension of the cold chain can be expected from private investors upstream of the two main infrastructure projects (the airfreight cargo village and the Tema shed). Through a participative approach, cluster stakeholders will have developed a more focused view of infrastructure issues which will improve future project designs. The transfer of the management of these collective infrastructures will provide indications of actual stakeholders' motivations and capacities that will be useful in devising assistance strategies for AgSSIP's subsequent phases. In particular, the vegetable post-harvest service centers can serve as the basis of a future industry focused extension network involving private and institutional technicians.

Implementation: Investments in the cargo village and at Shed 9 must be considered an absolute priority by AgSSIP coordination:

- any competitive advantage developed through other actions will depend on the improvement of these facilities;
- these are fairly complex infrastructure programs which will pose many challenges in terms of design, procurement and institutional coordination that will induce inevitable delays in the ideal timetable.

It is therefore imperative that specific assistance be provided to AgSSIP coordination in order to carry out these infrastructure components. This assistance would supervise the technical studies, organize the cluster stakeholder consultations, develop the contractual framework for the transfer of management to exporter associations and coordinate the project tender and construction activities. It must also be noted that the airport cargo village program should be independent from the current airport master plan studies that will be carried out in the last quarter of 2003.

California in Davis, and Extension Systems International, the program met its goals by providing detailed information specific to 34 growers and exporters of fresh fruits and vegetables and public sector participants in Ghana.

Component 5 - Cluster building :

5.1 Strategic information gathering and dissemination: AgSSIP should encourage the formation and strengthening of cluster dynamics among the stakeholders of the horticulture export industry. This can be achieved by providing existing structures with greater capacity for gathering and disseminating strategic information. Resources should be made available to a cluster working group, for example, a FAGE and GEPC working group. These resources would be allocated to:

- the contracting of market studies targeted at specific issues: identification and in depth analysis of specific diversification opportunities (melon, mango), comprehension of the retail market and consumer perceptions in specific countries for existing products (pineapple, papaya, specialty vegetables, sweet potato);
- the collection of strategic market information: subscription to weekly price and trend newsletter, contracting of tailored market monitoring services with on-market consultants;
- the collection and analysis of trade statistics: Eurostat database review (quarterly basis), Swiss imports, country specific databases (central market activity);
- the monitoring by an independent correspondent of weekly arrivals at various strategic ports (especially for the pineapple trade);
- the development of a competitiveness benchmarking database establishing Ghana's position relative to competing origins on key performance indicators for the world horticulture industry;
- the creation of a geographic information system positioning existing producers of export oriented horticulture commodities on the map of Ghana, permitting the monitoring of the industry's development and, eventually, the establishment of a national traceability reference system;
- the development and improvement of FAGE/GEPC dissemination capacities by the support to web and on line newsletter applications, market briefs, statistical analysis and competitiveness reviews.

5.2 Conferences and events : AgSSIP should provide support to training activities in specific areas not yet covered by existing programs but critical to the industry's development, for example :

- papaya and mango seminars: in order to develop an industry strategy concerning these two immediate export diversification opportunities – market dynamics, cost structure and technological issues, logistics systems, benchmark costs, growth strategy, competing strategies etc;
- a seminar in sea freight related issues in order to bring all industry stakeholders to the same level on technical issues – container and reefer ship logistics and handling techniques relative to freight produce, insurance and claims management issues, understanding of the sea freight business and cost structure;
- a seminar on new market opportunities identified by the FAGE/GEPC studies;
- a seminar on competitiveness issues helping industry stakeholders monitor the Ghanaian competitive position relative to cost effectiveness, reliability, growth capacity, innovation clout, marketing efficiency and brand recognition.

5.3 Cluster establishment: Existing cluster organization presently have access to funding, of from both Government and Donor sources. GEPC has access to EDIF funds and government

budget resources to cover its recurring costs and fund its staff requirements. FAGE, on its part, relies on USAID support. Rather than fund a specific organization, AgSSIP would fund specific activities aimed at reinforcing the horticulture cluster, mainly its information dissemination and extension capacities. AgSSIP could fund the creation and recurrent costs of regional information posts, managed by a consortium of both organizations – terminals with internet access (eventually high speed) located in key regions and accessible by the industry, possibly using the recently created agricultural information centers pilots. It is also recommended that AgSSIP allocate specific funds to build up capacities of the crop extension services dedicated to export oriented horticulture. AgSSIP should fund the recurrent costs for a first team of regional horticulture specialists working in direct link with exporters and grower associations. An ongoing technical training program should be created for this core team, bringing in regional and international experts to transfer critical know-how. The team would also be integrated in most industry training efforts in order to give their services a market oriented perspective. A specific study is equally planned for the creation of an innovation focused body modeled after the "Foundation" model[15].

Expected results: First hand results from this component will be an increased awareness, by both the government and cluster groups, of the key competitiveness issues and corresponding strategic responses. Company and sector strategies should gain in effectiveness and credibility, preparing the terrain for future partnering activities. A reinforced crop extension service and its linkage to the private sector will help AgSSIP and MOFA devise an extension strategy adapted to high value export crops that could be scaled up in a subsequent phase.

Implementation: The initial AgSSIP plan called for the creation of a specific APEX unit that would centralize support to the horticulture sector. In order to keep with the "open-ended" and collaborative approach true to competitive clusters, it would be more appropriate to build on existing horizontal competencies developed within a private federation such as FAGE and the government's own GEPC which, each on its own, have demonstrated promising skills. AgSSIP should encourage further cooperation by asking both structures to collaborate in the realization of the proposed activities. Seminars and industry events would be defined and organized jointly, with *ad hoc* external support. For the crop extension services subcomponents, AgSSIP should promote the effective integration of the MOFA teams in emerging private sector smallholder programs[16].

[15] Most leading exporting nations in the fresh produce industry house non-profit venture bodies aimed at diversification and innovation, of which leading examples are Fundacion Chile and Negev Foundation.
[16] For instance, Tongu Farms, located in Volta region, is currently developing a small holder production program to supply its fresh-cut pineapple plant.

Component 6 - Farmer ownership model :

6.1 Technical assistance to the formation of FOMs: The progressive maturing of the Farmapine project, towards a fully sustainable and growing business operation, justifies AgSSIP interest in supporting the creation of similar ventures aimed at promoting farmer ownership in the export marketing of their fruit. However, let us remember that Farmapine was built from a pre-existing producer base. Future FOM's will have to grow along with the development of new market opportunities (for example smallholder papaya plantations or the creation of a MD2 producing basin in the lower Volta region). They will however retain a "start-up" character where the emphasis will be less on capital financing than on know-how acquisition and management structuring.

Other areas for the extension of the FOM concept can be promoted. For instance, AgSSIP could

- assist less integrated concepts such as input supply cooperatives, which could be linked with the inland packhouse networked discussed in component 4
- finance so-called "product-development" joint ventures where Ghanaian entrepreneurs and grower cooperatives could join-up to test a market opportunity (passion fruit or melon), isolating their main structure from a more risky pilot operation
- apply the FOM concept to collective irrigation networks, particularly for the financing of collective drip irrigation systems which could prove useful in the development of smallholder systems for papaya, melon and specialty vegetables such as beans and okra.
- transfer the management of the post-harvest and logistics infrastructure funded by AgSSIP to exporter/growers through a FOM. In many respects, the management of the vegetable packing facility at the airport or the cold stores at Tema shed could be shaped into FOM systems, at least partially.

The challenge will be to identify strong leadership at the grower level and link it with a sound business plan and a realistic capacity building strategy. This identification, brokering and build-up process will rely on close technical assistance, provided by a specialized NGO.

6.2 Pilot financial instruments: In complement to the technical assistance provided to emerging new FOMs, it is recommended that AgSSIP set up resources to fund pilot activities which will test the actual sustainability of the new concepts. These funds would take the form of capital endowments, to be applied to specific FOM activities: acquisition of collective post-harvest equipment or irrigation networks, funding of base inventory for a pesticide distribution network, creation of infrastructure and provision of supplies for the creation of collective nurseries and seed stock distribution networks. These financial instruments should be paired with a management structure that is fully accountable and a demonstrated equity build-up on the part of the FOM members. Funds could be managed either as matching grants or in another fashion aligned with the provisions of the AgSSIP loan agreement.

Expected results: Depending on the capacity both of the Ghanaian entrepreneurs and of the technical assistance, it can be expected that at the end of the AgSSIP extension, a number of variants on the FOM model will have been developed with the stakeholders. These innovative schemes will have been tested through several pilot operations and successes will be ready for a scaling up in the course of AgSSIP's second phase.

Implementation: Implementation of the FOM program should be contracted out to an experienced NGO, capable of providing sound business guidance from start-up and a track record in grower association needs and capacities. The implementation of the FOMs must take care not to use a subsidized advantage to prey on existing functioning networks but to apply this to the development of new crops and/or growing areas. In any case, funding by AgSSIP or other financial bodies should be closely monitored by the NGO so as not to over-leverage actual vested equity levels of the FOM organizations.

Component 7 - Support to implementation and strategic monitoring:

7.1 Steering committees: The horticultural components are complex and it is proposed that the AgSSIP coordination unit should set up a steering committee to monitor horticultural project progress. Three subcommittees would monitor critical project components:

- the *logistics infrastructure* steering committee would be composed of the specific government authorities and agencies as well as stakeholder organizations and would be responsible for overseeing the construction of the main infrastructure program: the airport fresh produce terminal and the renovation of shed 9;
- the *quality management* component would require the creation of a specific committee involving industry stakeholders and existing quality management programs and its main objective would be to ensure that AgSSIP initiatives complement existing program;
- An *MD2 initiative* committee would equally be necessary to oversee the implementation of this complex program on a regular basis.

Given the complexity of the task, it is suggested that the AgSSIP coordination unit contract outside technical assistance in order to supplement existing resources. This technical assistance should have the capacity of providing *ad hoc* expertise in a diversity of fields covering the breadth of the AgSSIP program. This ready access will accelerate the instruction process since AgSSIP will not have to go through the time consuming recruiting process when technical advice is required.

7.2 Strategic monitoring*:* In parallel to actual project implementation, technical assistance will be provided to the steering committee and cluster groups by an extensive socio-economic and competitiveness benchmarking study that would set the monitoring framework against which industry performances will be evaluated. This competitiveness assessment framework will be instigated by IFPRI and then transferred to FAGE and GEPC for joint update on an annual basis, with IFPRI guidance. Further, it is recommended that independent appraisals accompany the project implementation, ensuring that activities are being implemented as planned, and signalling to project coordination any constraints or new developments which impact on the full success of the AgSSIP plan.

Expected results*:* The proposed activities are ambitious for a two year period. The implementation process will necessitate the building of strong project management capacities, both in the coordination unit and amongst the industry stakeholders which will be closely linked to project activities. This should result in strong team building which should prove highly valuable for subsequent phases of AgSSIP. Another result will be the incorporation of an industry strategic focus all through project implementation and in the design of a subsequent AgSSIP phase.

Implementation*:* The challenge will be to ensure that the preliminary studies for critical components such as the MD2 and the infrastructure programs are carried out quickly in order to launch actual activities in the short term in order to meet the project extension deadline. Finally, it is critical that AgSSIP coordination is aware of, and informs, all projects in the horticultural export sub-sector of proposed activities to avoid duplicate funding.

5.3 Projected Impact

The proposed AgSSIP action plan for the development of horticulture exports represents an investment by the Government of Ghana of some US $9.5mn over a two to three year extension of the project. The investment is a package of components: the integrated nature of supply chains precludes the selection and preference of one component over another.

The analysis of growth opportunities for Ghana's horticultural sector, carried out in this report, gives reasons to be optimistic that the AgSSIP investment should yield substantial returns in terms of economic and export growth, private investment and increased farm incomes.

Table 5-3 overleaf was developed in order to give a rough idea of the magnitude of this economic impact by focusing on two key indicators: increase in export sales and in new direct investment by the private sector. A full economic analysis would be warranted in order to quantify correctly the project's impact along socio-economic concerns such as increased farmer revenues or additional rural and urban employment, allocated to each production zone. It would also be necessary to identify the import requirements for generating such export levels and quantify the net effect in terms of added value and net currency inflows. An analysis of fiscal revenues generated by the industry would give an indication of the GOG's actual return and ability to reimburse the IDA credit and generate surplus. Such analysis, outside the scope of the present report, is strongly recommended. Nevertheless, sales increase and private investment should give decision makers an indication of the level of added value, created as well as the formation of private capital equity on which the industry's sustainability is to be founded.

The data presented in Table 5-3 are estimates of the attainable volumes of yearly horticultural exports, to be achieved in the mid term for a set of opportunities that can be successfully developed over the AgSSIP investment period. The rational for growth in each sector is explained in the section of the report dealing with opportunities. That section links expected volume growth with European export volumes and market trends. The model does not provide for a progression of sales over the first project years and chooses to focus on yearly sales level that should be achieved in the mid term or after five years with the consistent application of the action plan.

CIF prices were used for sales evaluation (sales value at point of destination) in order to give decision makers an idea of the full economic activity generated by an increase in horticulture exports, including freight costs. This measure was preferred to FOB values (sales value at point of shipment) which do not include freight costs and thus do not take into account the ability for Ghana's exporters to increase added value through productivity gains in this important cost component. Prices were based on existing values, discounted to provide for increased competition.

Investment estimates have been based on the consultants' experience concerning investment requirements linked to specific farm yields and surfaces, as well as plant and working capital requirements per level of export activity. Investment levels take into account the systematic need for cold-chain investments at plant level (cold storage, pre-cooling, refrigerated transport etc). Values were stated in Euros (€) in order to facilitate price comparison with existing performances on Ghana's principal export market.

Table 5-3 Potential Impact of the AgSSIP Investment Program

(in '000 Euros)

A. EXPORT REVENUES (Increase in yearly export sales - 2004-2008)

A.1 Increase in operating margins in pineapple sales value through the conversion to higher value MD2

A.	CIF price of MD2:	1.10 €	per kg	
B.	CIF price of Cayenne	0.65 €	per kg	
C = A-B	Difference	**0.45 €**	per kg	
D	Current seafreight volume:	30,000	tons	
Mid term impact ('000 Euro)		13,500		13,500

A.2 Increase in volume for existing and new products

	Expected mid term increase in sales volume (Tons)	Unit CIF value		
Pineapple - MD2	30,000	1.10 €	per kg	33,000
Papaya (seafreight)	5,000	1.40 €	per kg	7,000
Mangoes	3,000	1.10 €	per kg	3,300
Melons	5,000	1.00 €	per kg	5,000
Okra	3,000	2.20 €	per kg	6,600
Sweet potato	3,000	1.00 €	per kg	3,000
Fresh cut produce	3,000	4.00 €	per kg	12,000

Total increase in yearly import revenues from horticulture produce (in '000 Euros) 83,400

B. PRIVATE INVESTMENT

B.1. New farms and extension in planted area

	Expected mid term increase in sales volume	Export yield (tons per ha)	Land utilisation ratio	Total hectares	Investment ('000 Euro/ha)	
Pineapple - MD2	30,000	40	2.5	1,875	5.0	9,375
Papaya (seafreight)	5,000	50	2.5	250	6.0	1,500
Mangoes	3,000	3	1.0	1,000	1.5	1,500
Melons	5,000	25	1.5	300	5.0	1,500
Okra	3,000	6	1.5	750	3.0	2,250
Sweet potato	3,000	20	1.5	225	3.0	675
Fresh cut produce	3,000	20	2.5	375	5.0	1,875
Sub total: Investment in increased farm area ('000 Euros)						**18,675**

B.2 Post harvest capacity and working capital

	Expected mid term increase in sales volume	Investment in post-harvest ('000 Euro/1000 T)	
Pineapple - MD2	30,000	400.0	12,000
Papaya (seafreight)	5,000	500.0	2,500
Mangoes	3,000	350.0	1,050
Melons	5,000	500.0	2,500
Okra	3,000	300.0	900
Sweet potato	3,000	250.0	750
Fresh cut produce	3,000	1000.0	3,000
Sub total: Investment in post harvest and working capital ('000 Euros)			**22,700**

Total increase in private investment in horticulture (in '000 Euros) 41,375

Increased sales:

In the proposed model, yearly export sales in horticultural produce could increase by €83.4mn over the next five years. Of this projected increase, some €13.0mn derives from the sale price differential that could be achieved by a rapid conversion from existing Smooth Cayenne to the MD2 (based on Ghana's existing sea freight volume). An additional € 33.0mn should result in additional market growth in Ghana's MD2 sales. A complement of nearly €40.0mn will come from the scaling up of diversification crops and an increase in volume by the fresh-cut sector. All these results are dependent on the introduction of new planting materials, improvement in the cold chain at the point of shipment, applied R&D, efficient extension and improved cluster collaboration.

Direct investments:

An increase in export sales cannot depend on the AgSSIP program alone. Given adequate conditions and infrastructure, the private sector should capitalize on such opportunities, via a mix of self-financed equity capital, foreign partnerships and financial institutions. As was stated in this section, the creation of basic infrastructure at shipping points (particularly the cold chain) will comfort private interests as well as small farm owners in investing both at plantation and post-harvest levels. The value of such investments should near €41.4mn over the mid term, or more than four time the AgSSIP initial investment.

Although the imprecise, these estimates nevertheless give a broad indication of the downstream impact in terms of increased incomes and investment. It must also be said that although the achievement of such performances can be viewed as a probable outcome, the AgSSIP intervention should also be evaluated in terms of its contribution in ensuring an equitable redistribution all along the value chain and right up to the small farmers. By giving access to MD2, improving available planting material, increasing extension capacity and promoting the Farm Ownership Model, the proposed AgSSIP action plan provides for the construction of a successful and diversified industrial cluster.

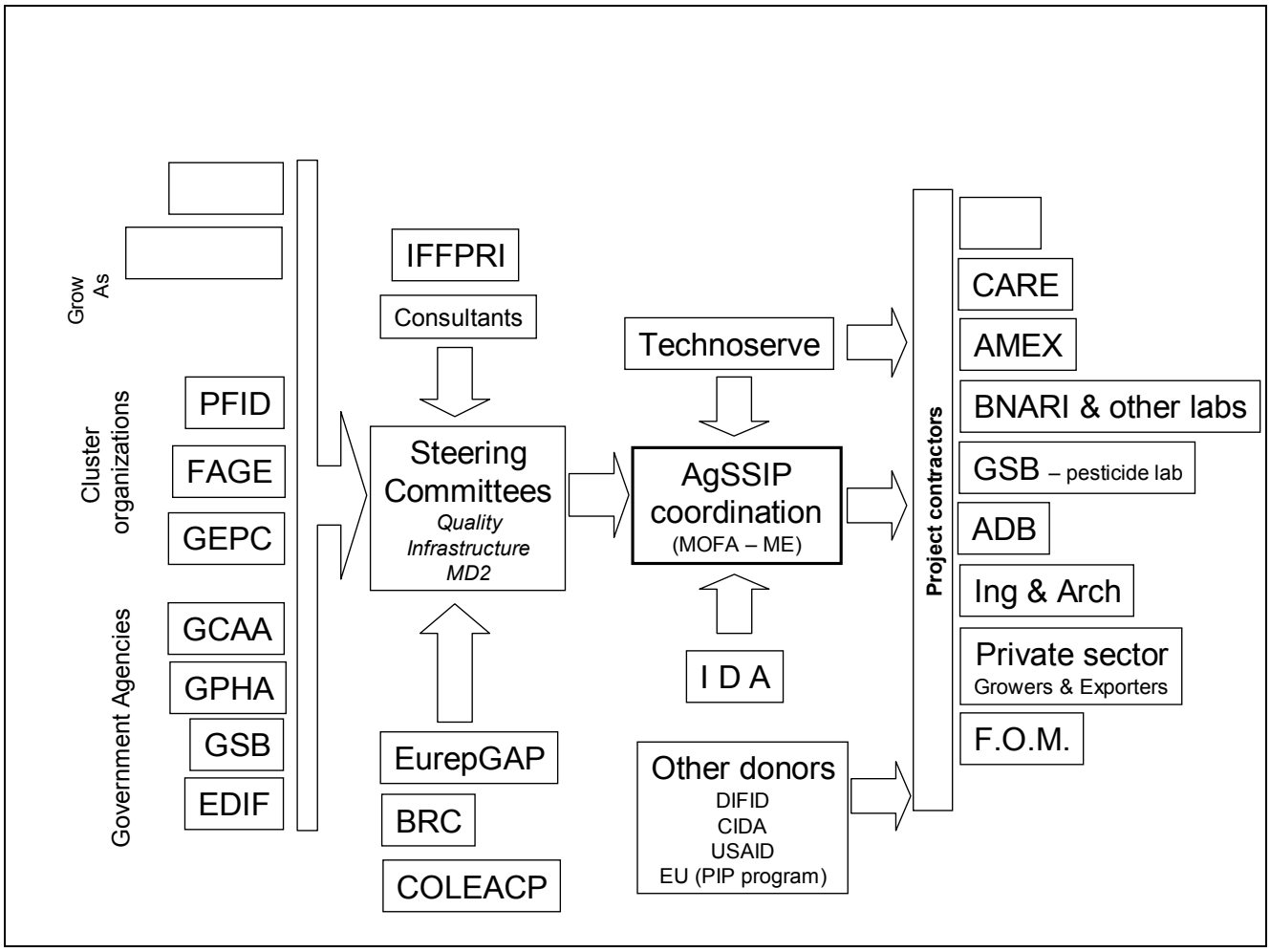
5.4 Phase 2 perspectives

At the end of the extension period, the stage should then be set for a strong industry development surge, both in volume and increased competitiveness. Significant interest should be generated throughout the global fruit and vegetable industry by Ghana's access to adequate cold chain infrastructure at the critical shipping points, as well as the country's entry on the growing MD2 product niche.

In a subsequent phase, AgSSIP investments could then focus on strengthening the skill and infrastructure founding Ghana's ability to compete. This would require investment in longer term perspective:

- creation of a horticulture and agri-business management program for the training of middle managers and field technicians;
- development of access roads network and irrigation capability;
- field research capacities;
- scaling up of export oriented extension networks;
- promotion of the development of agri-business processing technologies;
- investment promotion and partnering;
- SME incubator infrastructure and technical/managerial support;

- Scaling up of successful Farmer ownership model pilots.



ANNEXES

Annex 1 Activity: Renovation of Tema port - Shed 9

Background :

Since 1996, Ghanaian pineapple exporters have been shipping by sea, using Shed 9 and the associated berths for the receiving, storage, handling and shipping operations. Current volumes exceed 40.000 pallets yearly. Shed 9 is a closed warehouse of approximately 4.400 m2, destined to handle export goods, of which SPEG is currently leasing half of the floor space (2.200 m2) from GPHA. The shed was initially designed for non-perishable items and is not adequately ventilated. This results in a differential of +5 deg C with the outside temperature. This has an adverse effect on fruit stored in the shed prior to the ship's arrival. If Shed 9 was modified to allow for full ventilation, the equipment would be at par with that of Côte d'Ivoire's recently constructed fruit wharf, of a similar area but fully open on all sides to permit maximal air circulation.

Currently, most of the seafreight program is dependent on the Dole line out of Cameroun. Shipments using the container lines out of Tema or Takeradi (WAL, MAERSK or SDV) are deemed more expensive. Container shipping is also more susceptible to waste since no pre-cooling is performed and the exporters rely on the containers' limited cooling capacity to bring down the fruit to its optimal 8 deg C shipping temperature. Reefer ships have greater ventilation capacity which leads to faster cooling en route to Europe. Therefore, containers cannot be used as an alternative to reefer vessels, which limits SPEG's capacity to negotiate lower freight costs with the reefer lines.

Limited cooling capacity also limits the export of other high value crops such as papaya, mango and melons by sea. The volumes associated to these products cannot justify a full cargo hold and cannot travel at the 8 deg C temperature required by pineapple. These products therefore require containerized freight, associated with in-port pre-cooling capabilities. Field pre-cooling is not feasible as it would require the use of Gensets to keep the containers operating on the trip to the port. These are not readily available and their rental increases the shipping costs by an important margin. This constraint has limited Ghana's ability to penetrate the high growth seafreight papaya sector.

SPEG manages the shipping operation and bills a $5.00 per pallet charge to cover shed rental, forwarding and management costs. SPEG manages to recover its costs and generate sufficient funds for its internal funding.

Intervention

The proposed intervention would be for AgSSIP to:

- finance the renovation of Shed 9 to ensure proper ventilation of sea freighted pineapple;
- finance the construction of a cold store for the pre-cooling of produce and efficient container stuffing;
- equip the cooling facility with a pair of Gensets to provide for on-location pick-up of highly perishable pre-cooled produce such as papaya, mango and melon.

SPEG would be the designated operator of the export shed but would have to operate it under supervision by a steering committee composed of stakeholders. Maintenance of the cold store would have to be subcontracted to a cold store specialist and maintenance costs would have to be factored into the global SPEG charge, encompassing all seafreight operations. Direct costs (energy and handling) associated to the cooling operations would be billed directly to the users.

Expected results

- Reduction of the waste caused by storage at high temperature.
- Improvement in quality of seafreighted pineapple and increase in export margins.
- Reduction of shipping costs due to possibility of using different shipping routes by container.
- Product diversification made possible by the pre-cooling facilities: papayas, melons, mangoes.

Valuation

A technical study would have to be performed in order to establish the cost of renovations to Shed 9 to ensure proper ventilation, due separation from the other remaining section, installations required for a raised platform to permit direct container stuffing from the cold store. Current SPEG estimates of upgrading costs were ¢150 million. This estimate should be revised to take into account structural and roofing improvements (full ventilation, protection against rodents, closing in of general cargo section) as well as the civil works involved in building a raised platform for the coldstore area for container stuffing. Expected costs should therefore be estimated at

The cold store should at least cover a surface of 600 m2, equipped with forced ventilation systems, which could service at least 10 containers (200 pallets) per day. This would represent an investment of approximately US$ 500.000 (to be validated).

Risk factors

- SPEG could use its management position to keep competing exporters from using the facility.
- Technical performance of SPEG in management and maintenance of Cold store facilities.
- Limited use of cold store in the start-up phase with price undercutting by reefer line in order to secure market share.

Implementation scheme

The project implementation would require the following steps:

- **Initial Stakeholder coordination**
- **Technical feasibility study (2 months):** this study would require an initial design, based on stakeholder observations (SPEG, shipping lines, container lines, other exporters, GPHA) which would then be reviewed and accepted by the professionals.

- **Contractual agreements**: Agreement with SPEG as to cost-sharing, management governance of facilities, long term lease by GPHA to SPEG.
- **Preparation of international tender**
- **Construction**

Annex 2 Activity: Introduction in Ghana of the MD2 pineapple cultivar

Background :

Since its introduction in 1996, the "MD2" pineapple cultivar, developed and marketed by Fresh Del Monte Produce Inc. under the "Del Monte Gold – Extra Sweet" brand, has taken up more than 50% of the worldwide market (USA, Europe and Asia) for branded fresh pineapple. The product is characterized by a blockish shape, golden outer shell, a deep green leafy crown, a golden yellow pulp and a distinct sweet taste with limited acidity. The product was developed by FDMP in collaboration with the University of Hawaii from cultivars used traditionally for air freighted produce from the island to the USA. The product has been skilfully price-positioned on the European market: between premium airfreight and regular sea freight pineapple (i.e. the Smooth Cayenne cultivar currently cultivated in West Africa). Through intense promotion and FDMP's efficient distribution network, MD2 today fetches a significant price premium of 75% over the Smooth Cayenne price, with a similar price structure and a gross margin which can be estimated at more than 30% of net sales[17].

The MD2 is not a proprietary cultivar, exclusive to FDMP, and today, the current trend in North America is the sourcing by supermarkets of alternate "Golden" brands from Costa Rica and other Latin American origins. These new entries have not significantly altered the price structure for MD2 pineapples on the US market. It would be expected that the same will happen in Europe; with the pricing structure remaining favourable to MD2, at least in the first years following the new entrants' arrival. This trend sheds a new light on the actual "brand loyalty" that has been achieved by FDMP through its advertising campaigns. The consumer appeal of the MD2 cultivar seems to be capturing most of the premium, rather than the fidelity to the ***Del Monte*** brand.

Currently Ghana produces quasi-exclusively the Smooth Cayenne cultivar, which is positioned at the markets low-end. Studies by Royal Ahold are being carried out in order to verify if the shift in preference towards MD2 is as profound throughout Europe as what they currently experience in Holland. Trade statistics certainly indicate this shift, with Costa Rica's ever growing market share since 1996. Further, even processors have requests to shift to MD2 for fresh cut products in order to achieve the new norm in terms of pulp color and taste.

Certain Ghanaian exporters have introduced MD2 on their plantations at great cost. Plantlets have been purchased at prices ranging from $0,30$ and $0,60 per unit, which represents an investment of 15.000 and $30.000 per hectare. This initial base is then used to produce suckers at a ration of in between 4 to 8 per plant. Given the high cost of introduction, current acreage of MD2 is very limited. Larger firms with European backing are currently investing in tissue culture facilities (Beaumart/Blue Skies joint venture, Tongu Farms). SPEG has taken a stake in a joint company with BNARI[18], with AMEX assistance and USAID financial backing. Other individual growers have been able to reduce plan costs by ordering semi-finished plants in Costa Rica and taking charge of the hardening process on their production facilities in Ghana. The objective of these programs is to achieve a unit plantlet cost in the

[17] Fresh Del Monte Inc Annual report - 2001
[18] Bio-Nuclear Agricultural Research Institute

$0,15 to $0,20 bracket, which would bring the cost of an hectare of MD2 in between $7.500 to $10.000.

Nevertheless, even if MD2 cultivars become available in Ghana, the high cost of base planting material will limit the pace of conversion and hinder Ghana's capacity to pick up market share rapidly on this new segment, leaving the floor open for other South American origins, and, eventually, Côte d'Ivoire[19]. A late entry by West African origins could lead to a dangerous association, by the consumer and distributors, of MD2 with South America and Smooth Cayenne with West Africa, which would damage Ghana's competitive position in a durable fashion.

More importantly, in a poverty reduction perspective, it is clear that the cost of conversion will be a definite barrier to the entry of outgrowers on the profitable MD2 segment. Currently Smooth Cayenne suckers are either self produced by growers or purchased at 300-500¢ per unit (less than $0,03). In the present conditions, the only entities that will be able to make the conversion will be companies with strong financial backing.

Intervention

The proposed intervention would be to subsidize the production of MD2 plants and its dissemination amongst existing Ghanaian pineapple plantations. This would be done through an "open tender" approach which would source cultivars from existing, or to be created, tissue culture laboratories. These laboratories would have to respect a set of specifications in order to guarantee the supply of true MD2 cultivars, free of disease, on a consistent basis. Hardened plantlets would be purchased at a set price and distributed to growers that would have their current acreage of Smooth Cayenne registered with the AgSSIP program.

Plantlets would be awarded on the ratio of 30% of existing Smooth Cayenne currently under cultivation for export, with sufficient demonstrated know-how on the part of the grower. The existing plantations, as well as the projected planting sites for MD2, would be geo-referenced on a computer based GIS system, using GPS technology. GIS data, particularly the projected planting sites, would have to be audited and certified by an independent third party as to its actual existence, its appropriateness for cultivation and quality of land preparation, before any plantlet is to be made available to a particular grower. Actual delivery and planting would have to be supervised by the program staff.

Plantlets would be transferred at a set price. The acquisition of plantlets would be financed through a financing plan which would include: a subsidy, a mid-term financing facility (with the planting material as collateral) and an initial down payment.

[19] Although, given Côte d'Ivoire positioning mainly the more "traditional" French market, with its specific tastes and preferences, it can be expected that Smooth Cayenne will remain the dominant cultivar in that country, with MD2 coming in as a diversification to service the rest of Europe.

As a % of set unit price

Category	Subsidy	Financing	Down payment	Subsidy per ha (base $0,20 per plant)
Plantation > 100 ha	30%	40%	30%	$ 3 000
Plantation > 20 ha	50%	30%	20%	$ 5 000
Plantation >= 5 ha	60%	30%	10%	$ 6 000
Plantation < 5 ha	75%	20%	5%	$ 7 500

Expected results

- Increase in volume of MD2 exports to 90.000 tons in year 4, which represents a FOB value in excess of $72 million ($0,80 per kg).
- Increase in outgrower revenues due to the increase in FOB prices as well as growth of exports.
- Increase of market share of Ghanaian pineapple on the higher-end items.
- Increase in gross margin.
- Reduction of shipping costs due to the increase in volumes shipped.
- Investment in intensive production techniques by large and small growers, made possible by higher margins.
- Investment in on farm post harvest facilities (pre-cooling).
- Product diversification made possible by newly installed production and packing facilities.
- Tissue culture know-how and improved technological base capable of ensuring continuous supply in quality planting material.

Valuation

Currently, the export base for Cayenne can be estimated at 60.000 tons[20], which at current yields represents the yield of approximately 1.500 ha of land. An initial planting of 40% of this capacity i.e. 600 ha would require that approximately 30 million MD2 plantlets be made available. According to the proposed financing scheme, this would result in a global capital need of US $6,0 million (at a plantlet price of $0,20) which would be covered by the following:

- a subsidy in the range of 3,0 to 4,0 million US$;
- the setting up of a $1,5 million credit facility;
- a direct contribution of growers (mainly the larger ones) of $ 2,0 million . This figure would have to be reviewed

[20] This figure includes both fresh and processed pineapple exports

In the two years following initial plantings, MD2 capacity should increase by an average ratio of at least 4:1, given observed performances reaching up to 8 suckers per plant. This would give Ghana the potential of developing a production base of 2.400 ha of MD2 (in addition to subsequent plantlet production through tissue culture), which translates into an additional export capacity of 96.000 tons at the end of year 4.

Risk factors

- Sale of subsidized MD2 plantlets by outgrowers to large scale farmers.
- Underestimation of the importance of the post harvest infrastructure and cold chain requirements necessary to support the MD2 initiative.
- Forgetting the importance of developing professional marketing skills in conjunction to the introduction of a new product, which could result in lower margins than expected.
- Wiping out the existing Cayenne base which still has a market position, even at the lower end of the market.

Implementation scheme

The project implementation would require the following steps:

- **Feasibility study (2 months):** the design of the credit and subsidy mechanism and the associated the contractual framework, the valuation of the set purchase price for plantlets as well as the technical specifications associated to this price, the technical specifications for grower eligibility and the database of eligible growers, the evaluation of existing potential suppliers;
- **Contractual agreements**: financing, technical monitoring, purchase offers;
- Launching of a first phase for the production and distribution of 10 million plantlets.

The subsidy could be funded through AgSSIP or another financing facility aimed at the development of export crops.

The bank financing could make use of the current Edif facility and be managed by ADB.

Technical monitoring and follow-up could be contracted to AMEX or Technoserve.

A steering committee would be created, comprising AgSSIP, FAGE, SPEG, ADB and PFID.

Annex 3 Policy, Regulatory and Institutional Environment

Policy issues and the administrative institutions influencing the horticultural export sub-sector in Ghana are discussed in some detail in the World Bank's 2001 study of international competitiveness[21] and in the JITAP diagnostic report and strategy for horticulture.[22] In summary, the policy and regulatory areas with most impact on the horticultural export sub-sector are as follows.

Legal Issues

Monetary

The cedi exchange rate has been determined by the market since the early 1990s. Attempts by the government during the last 10 years to offset the effect of deteriorating terms of trade on the exchange rate have not been successful. Under the current macro-economic policy inflation has now reportedly dropped to 14.3% while interest rates are at 24.5%. Commercial lending rates are still in the low to mid thirties however, and the very high real rate of interest deters borrowing.

Land

Confusion over land tenure is still reported to be a constraint in agriculture. Doubts over the legal status of land discourage investment in large scale commercial ventures, and thwart the smaller producer in using the land as collateral. Foreign investors, while not permitted to own freehold property, are able to lease land for a period of up to 50 years with an option for renewal.

Investment

Under the Investment Promotion Centre Act (1994) a number of tax and duty incentives are available. Where the venture is export oriented a number of further incentives are added including drawback schemes for customs' duties for materials to be re-exported, tax rebates and an export proceeds retention scheme. The incentives may be further enhanced by operating as an Export Processing Zone under the Free Zone Act (1995) which allows, *inter alia,* complete exemption from income tax for 10 years, 100% foreign ownership and no restrictions on repatriation of profits.

Administrative Institutions

MOFA- Ministry of Foods and Agriculture

http://www.ghana.gov.gh/governing/ministries/economy/agric.php

There is little direct government involvement in the horticultural sub-sector, not least because the industry is comparatively young and has only gained significance in the last 10 years.

---

[21] *Ghana International competitiveness – Opportunities and Challenges Facing Non-Traditional Exports* (2001) World Bank Report No. 22421-GH

[22] *Diagnostic Report and Export Development Strategy for the Horticultural Industry in Ghana* (2003) Joint Integrated Technical Assistance Programme to Selected Least Developed and Other African Countries. ITC/DTCC/03/2669

There is no regulatory involvement directly aimed at horticulture and indeed government support, via the Ministry of Foods and Agriculture, has been quite limited:

- Within the MOFA, the Crop Services Directorate has a team of two dedicated to horticulture while extension services are handled at a district level without specialisation.
- Horticultural research is carried out at the Crops Research Institute in Kumasi, where initiatives in horticulture are currently limited to the maintenance and characterisation of the papaya germplasm collection. University research efforts come under the Ministry of Science and Technology.
- The Plant Protection Division is responsible for phyto-sanitary controls, food pest control, pesticide regulations and seed certification in all crop products. The Environmental Protection Agency licences the import of pesticides.

Ghana Standards Board

A pesticide residue testing laboratory is established at the GSB. This has been funded by successive donor grants for technical equipment and training. It seems that the laboratory does not have the resources to cover the recurrent costs of running a laboratory testing facility to the standards required by fresh produce importers. Current programmes from the FAO and other donors relating to the new pesticide residue legislation in the EU are in part directed at improving facilities here.

GEPC - Ghana Export Promotion Council www.exportghana.org

Under the Ministry of Trade, the GEPC is the governments export trade development effort aimed at product, market and human resource development. On horticultural product development there are efforts in mangoes, soya, chillies, sweet potatoes, papaya, black pepper, cashew and pineapple. Market development initiatives include the collation and dissemination of market information, compilation of national strategies, and marketing missions. The GEPC collates detailed statistical data on exports from Ghana.

Finance

Banking in Ghana has been restructured and the financial system is based on a number of banks and non-banking financial institutions under the regulation of the Central Bank. There are nine commercial banks, three development banks, five merchant banks and a number of rural banks. Non-banking financial institutions include the stock exchange, insurance companies, discount houses and a variety of leasing, savings and loans and credit unions.

Among the development banks the Agricultural Development Bank serves the fishing and agriculture sectors. Loans are currently available for agricultural projects at 27-32%. In the horticultural sub-sector the ADB has been involved in banana production as well as pineapples and is the majority shareholder in Jai River, the largest pineapple producer/exporter in Ghana.

The Export Development and Investment Fund (EDIF) created in June 2002 is a funding agency of the Ministry of Private Sector Development. EDIF provides financial resources to address problems associated with constraints in the exporting sector. EDIF is funded principally from a 0.5% tariff on non-petroleum imports. Other sources of funding are

Government grants and concessionary loans, but funding is still lower than expected as the 10% of proceeds from government divestiture of state owned organisations has not materialised. EDIF loans account for 80% of its spend and are available at 15%. The balance of EDIF income (about 10bn cedis or $1.2mn) is used for export development grants. There has been a low take up of the loans, but the fund is being promoted slowly through the regions.

Among the finance houses the Export Finance Company Ltd (EFC) provides financial support to the non-traditional export sector. The EFC provides short-term trade finance to exporting enterprises for mobilization, packaging and shipment costs while long-term finance for project development is not being provided.

Non-government Agencies

FAGE – Federation of Ghanaian Exporters www.ghana-exporter.org

FAGE is the umbrella organisation for all exporters in Ghana. The members are trade associations as well as corporate and additional funding to supplement the subscriptions is provided by USAID. FAGE is now moving its primary focus away from advocacy and becoming more involved in providing business development services such as market information and training.

Ghana Yam Producers and Exporters Association

The association for the yam trade.

HAG – Horticultural Association of Ghana

Formed in the 1980s as an association for those involved in the production and export of horticultural products, HAG is currently in difficulty. In June 2003 a merger with SPEG was under negotiation to become the fruit producers, processors and exporters of Ghana.

SPEG – Sea-Freight Pineapple Exporters of Ghana

www.ghana-exporter.org/speg/default.HTM

SPEG was created in the mid 1990s in order to link the various pineapple exporters and provide sufficient volume of exports to induce vessels to call at Tema. Until SPEG was formed almost all pineapple exports were air-freighted to Europe. Not only is this a niche market with limited opportunities to expand, but the air-freight capacity from Ghana was limited too. By combining export volumes SPEG have been able to part charter vessels from UBA that now call twice per week on the way from Cameroon to Europe. In consequence, pineapple exports have grown substantially.

VEPEAG – Vegetable Producers and Exporters Association of Ghana

With some 320 subscribing members VEPEAG forms a trade association for the vegetable sub-sector. VEPEAG provides a forum to bring the industry together, a link with CARE, extension efforts to its members, and research into various crops such as sweet potatoes, okra and chillies. VEPEAG also operates a packshed at the airport as part of its continuing efforts to add value to exports. This shed was funded by MOFA but is not active, in part because of its location outside the airport perimeter.

Aid and Development Agencies

Of the development agencies operating in Ghana, USAID is the most actively and directly involved in horticulture. USAID supports the Trade and Investment Reform Programme (TIRP) which comprises two elements: policy reform, implemented by Sigma One, and enterprise development, implemented by the contractors AMEX, Care International, TechnoServe, and IFDC.

Each of the contractors has its own sphere of activity. In horticulture for example, CARE supports the small vegetable growers, whereas TechnoServe are more orientated to the management services in pineapples while AMEX focus on market services. Latterly, a new initiative, co-ordinated by the Michigan State University Partnership for Food Industry Development, has brought the three principal contractors AMEX, Care and TechnoServe together into a Private-Public Partnership with Royal Ahold, the Dutch supermarket chain. This is a new model for developing synergies between the abilities of the different organisations, with MSU adding training and research capability to the operational functions of the USAID contractors, while the involvement of Ahold offers a direct link to the markets.

Among the other donor programmes, the most important initiative to the horticulture sector is the pesticide project from the German agency GTZ to develop integrated crop protections systems. This runs parallel to the efforts of COLEACP and its pesticide initiative (PIP) aimed at assisting exporters comply with the new EC legislation on pesticide residues.

Annex 4 List of Interviewees

Organisation	Activities	Persons met
AFGO – African Ground Handling Operations	Kotoka ground handling	Dennis Cockram – Managing Director afgomd@africaonline.com.gh
Agricultural Development Bank (ADB)	Banking services	Sammy Aryee Welbeck – Managing Director adb@africaonline.com.gh welbeckayisam@hotmail.com
Air Ghana Ltd	Air cargo shipping	Kingsley A. Ameyaw – Operations manager kingsley@airghana.net
AMEX International Inc	International NGO	Josh Glover-Tay – Agribusiness management consultant amextirp@ghmail.com Emmanuel E. Sam – Business & marketing advisor
ANTRAK Ghana Limited	Container freight forwarder – OTAL, SDV, Messina lines	Mohamed Omar – Managing Director mo@antrak-gh.com
ATC Farms	Chilli producer	Cephas Ametefe – Owner VPEAG Vice President
Athena Foods Ltd.	Juice processor and exporters	Dr Tony Mensah – Managing Director Athena@ghana.com
Biotechnology & Nuclear Agric Research Institute	Government Research Facility	Harry Amoatey –Research Scientist hmamoatey@yahoo.com
Blue sky products (GH) Ltd	Fresh cut pineapple and Fresh produce exporter	Andy Broughton – General Manager abroughton@blueskiesproducts.co.uk

CARE International – Ghana/ Togo/ Benin	International NGO	Reuben Mawuli Coffie – Programme manager – MDA coffie@care.ghana.com Andrew Odonkor – Sub-sector Manager (Fruits & Vegetables) odonkor@care.ghana.com
COMAFIN	Finance & investment	Jagjit Johal – Chief Executive jjohal@comafin.co.zw
EDIF – Export development & investment fund	Institutional – Export financing and development funding agency	T.K. Obeng – Chief executive Francis Mensah – Assist. Director, Export development & promotion fkmensah@hotmail.com
Exel Logistics (Ghana) Ltd	Freight forwarding and cold storage	Brian Timmer – Country manager brian.timmer@exelghana.com E. Bennet Bekoe – Operations manager Air Exports bennete.bekoe@exelghana.com
FAGE – Federation of Associations of Ghanaian Exporters	Professional organisation	Augustine Adongo – Chief Executive Officer fage@ighmail.com
Farmapine Ghana Limited	Production services and export marketing of fresh pineapple	Joseph Osei-Wusu – Sr Field Production Manager and Deputy Managing Director famapine@ghana.com josan60@hotmail.com
First Catering Ltd	Airline catering and food processing	Ali Traboulsi – Executive Director capewine@idngh.com

Gannat Farms Ltd	Fresh fruits and vegetables growers and exporters	Nour El-Galil Hassan – Managing Director gannet@ghana.com
GCAA - Ghana Civil Aviation Authority	Institutional – Air transport	Capt. Joe A. Boachie – Director general Jaboachie@ighmail.com Paul Kontoh – Deputy Director of Projects pkontoh@hotmail.com
GEPC – Ghana Export Promotion Council	Institutional – Export promotion	Erasmus Ashun – Head of training gepc@ighmail.com www.exportghana.org
Ghana Fresh Produce Limited – Perishable Air Cargo Handling Company Ltd – Media Horticultureal Development Company Ltd.	Perishable air cargo handling – Cut flower grower and exporter	John Opuku – Acquah – Director E. Muange – Export packhouse manager
GLAACO - Ghana Libyan Arab Agricultural Company	Mango producer	Samuel Yeboah – Farm Manager raidghana@yahoo.fr
Indgha Agro Enterprises Ltd	Asian vegetable producer and exporter	LK Gulati – Managing Director indghaagro@hotmail.com
John Lawrence Farms Ltd	Production and export of pineapples and mangoes	John K. Opoku-Acquah – Managing Director jlf@ghana.com

KLM Cargo	Air cargo shipping	Nane Martey Agidi III – Sales manager West Africa Sammy.oduro@klmcargo.com
Maersk Ghana Limited	Container shipping line	Emmanuel K. Baidoo – Sales manager tmasal@maersk.com
Merchant Bank (Ghana) Limited	Banking Services	George Okine – Account manager gokine@merchangh.com
Michigan State University – PFID – F&V – Ghana Private Public Partnership – Food Industry Development Program	International NGO	Prof. Samuel Sefa-Dedeh – Program Director sefad@ghppp.org Pearl E. Coleman – Marketing Manager pcoleman@msu.ghppp.org
Milani Ltd	Fruit grower /exporters	Bijean Milani – MD milani@africaonline.com.gh
Param Farms Limited	Asian vegetable producer and exporter	HS Cheema – Managing Director jai@ghana.com Gurmit Singh – Farm manager
Poly Kraft (GH) Limited	Packaging manufacturer	Emmanuel Mork – Senior marketing officer mork@polygroupgh.com
Prudent Exports	Pineapple and mango exporter	Edward A. Twum –Managing Director twum@pudentexport.com
Royal Ahold	Food retailer and importer	Roland Waardenburg – Director roland.waardenburg@ahold.com

SPEG - Sea-Freight Pineapple Exporters Of Ghana	Pineapple exporters' association	Stephen Mintah – General Manager speg@ighmail.com Kweku Amoafo-Yeboah – Port operation manager Kayeboah2001@yahoo.com
Tack Farms	Grower and exporter – Mangoes, vegetables, pineapples	Sam Tacky – Managing Director
Technoserve	International NGO	Nick Railston-Brown – Country Director nickrb@tnsgh.com Colin Watson – Client Director colin@tnsgh.com Charles Offori-Addo – Client Officer charles@tnsgh.com
The World Bank – Ghana Office	Financing organisation	Patience Mensah – Agricultural economist pmensah@worldbank.org
Tongu Fruits Ghana Ltd	Fresh cut pineapple and tropical fruit exporter	Daan Luteijn – Project Manager tongufru@idngh.com
USAID – US Agency for International Development	Donor	Adeline Ofori-Bah – Mission Environmental Officer
VEPEAG – Vegetable producers and exporters association of Ghana	Grower – Exporter Association	Emmanuel A. Annan – Technical support officer vepeag@ghana.com vepeag@hotmail.com
WAFF – West African Fair Fruits	Fair trade and Bio – products	Stephanie Gallat – Technical Assistant sgallat@ghana.com

WAL – West-Afrika Linien-Dienste GMBH & Co.	Container shipping line	Brad Stephens – Owners' representative wal@africaonline.com.gh
Wienco	Input importer/ distributor and fruit grower	Marc Kok – Gen Manager Agric. m.kok@wienco.com

Annex 5 Literature

Author / Source	Title	Date
Accord Ass.	**Vegetables from Ghana – Background Briefing**	1996
Accord Ass.	**The Future for the Ghanaian Horticultural Export Industry**	1998
Accord Ass.	**The European Pineapple Market – Reactions to Different Varieties & Ghana's Market Position**	2001
AMEX	**An appraisal of the Ghana Pineapple and Mango Industries**	1996
AMEX	**Workshop on Ghana's Pineapple Industry for Exports – Challenges and Threats**	1997
Cargofresh	**Perishables – Market Potential for Integrated CA Membrane Reefer Containers**	1999
CBI Protrade	**Exporting Fresh Fruit & Vegetables**	1997
CCARD	**Postharvest Handling & Transport Training of Trainers Workshop Report**	2002
Center for Small Farmer Commercialization Worldwide	**The Farmer Ownership Model**	2002
CheckOut Fresh	**Passports to Sell**	2000
COLEACP	**Export Logistics for ACP Countries for Fruit & Vegetables and horticultural Products**	1999
DEZINE ARC	**Proposed Upgrading of Warehouse at Tema Export Shed**	2002
EFSIS	**The EFSIS Standard and Protocol for Companies Supplying Food Products**	2002
EFTA	**Fair Trade in Europe**	2001
Eurofruit	**European Fresh Produce Monitor**	2000
Eurofruit	**European Fresh Produce Monitor**	2002
EUROSTAT	**Statistics for EU Trade**	1999-2001

GEPC	**Ghana's horticultural Exports**	
GEPC	**Horticultural Crop Handling and Marketing**	1992
GEPC	**Comparison of Export Performance of Non-Traditional Products**	1996-2002
GEPC	**Destination of Exports by Products**	2002
GEPC	**Miscellaneous Statistics on the Export of Non-Traditional Exports**	2002
Grower	**Traceability**	2000
IDS	**Working Paper 96 – Horticultural Commodity Chains: The Impact of the UK Market on the African Fresh Vegetable Industry**	?
IFPRI	**Globalization of the Agro-Food System: Success and Challenges for Promoting Africa's Horticultural Exports**	2003
JITAP	**Diagnostic Report and Export Development Strategy for the Horticultural Industry in Ghana**	2003
MOFA	**Agricultural Diversification Project – Development of Some Selected tropical Fruits and Vegetables for Export**	1999
MOFA	**Task Force to Find Solutions to Problems Affecting the Production and export of Non-Traditional Export Crops**	1999
MOFA	**Ghana's Agriculture on the Move**	2003
MOFA	**Agricultural Services sub-sector Investment Programme (AGSSIP) Support to Agri-Business**	2003
NRI	**International Markets for African Agricultural Exports: Agricultural Policy Reform and Agricultural Exports**	1997
NRI	**Development of Tools for Ethical Trading of Horticultural Exports**	1998
NRI	**Training the Trainers to Implement Food safety Programmes**	2002
PFID / USAID	**Marketing Plan for Fresh Vegetable Exports in Ghana**	2003
PFID / USAID	**Marketing Plan for Fresh Pineapple Exports in**	2003

	Ghana	
SEC	**Fresh Del Monte Produce Inc: Annual Report**	2000
SEC	**Fresh Del Monte Produce Inc: Annual Report**	2001
SPEG	**Shipment Statistics**	2002
TechnoServe	**Pineapple Industry Strategic Plan**	2003
Univ. of N. Carolina – LA Yow	**Success in Adding Value : the Case of the agro-Processing Sector in Ghana, West Africa**	2002
VEK Adviesgroep	**Prospects of the European Market for SSA Exporters of High Value Fresh Products**	2003
World Bank	**International Competitiveness – Opportunities and Challenges Facing Non-Traditional Exports**	2001
World Bank	**Producer Organizations & Access to Inputs Workshop, Uganda**	2002

wb244196

Q:\morgane\Trade facilitation\Ghana\Report Voisard Jaeger\FinalReport_GhanaHortiDevt_2003WordVersion.doc

February 26, 2004 9:36 AM