

Nontraditional Crop Production in Africa for Export

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Crops that are not part of the customary diet of the local population and grown primarily for their high cash values and export potentials are categorized as nontraditional. Recently, several African countries have gone into the production of nontraditional fruits and vegetables of temperate origin in order to diversify their agricultural exports and increase hard currency earning. Most developed countries fall in the temperate climate zone where cropping season is limited to the summer months. On the other hand, crops can be grown throughout the year in Africa as the continent is endowed with a tropical climate. Increase in consumer demand in developed countries for out of the season fresh fruits and vegetables has opened a niche for African countries to produce these crops for export during the void period at attractive prices. Increased labor costs in developed countries have made in-season production also an attractive proposition. High altitude regions of some African countries like Ethiopia, Kenya, and Uganda possess suitable climate for growing cool season crops requiring mild temperatures. Rising costs of greenhouse heating and labor coupled with pricing pressure in an increasingly global economy have made tropical countries a favored alternative for producing greenhouse crops. Some tropical fruits and vegetables also show substantial export promise as consumers' desire for variety and awareness of the health benefits of these crops increases.

PROSPECTS OF NONTRADITIONAL CROP EXPORT FROM AFRICA

Most of the nontraditional crops in Africa are produced for export to the European market. During 1990s, imports of fresh fruits and vegetables by European Union (EU) countries have surpassed all other categories of agricultural products (Watts 1994). A number of African countries have taken advantage of this opportunity by diversifying their agriculture into production of crops desired by the EU. South Africa, Cote d'Ivoire, and Kenya are leaders in non-traditional crop export, while Zambia and Zimbabwe have achieved rapid growth in export recently. Growth of Egyptian export of fresh vegetables has also been impressive. In 1994, African nations supplied 92% of EU imports of green beans from non-EU countries. Kenya was the largest supplier, accounting for 29% of these imports, followed by Egypt (24%), Morocco (13%), Senegal (7%), Burkina Faso (7%), and Ethiopia (5%) (Tropical Produce Marketing News 1996). The export of fresh vegetables from sub-Saharan Africa to industrialized countries climbed by 150% between 1989 to 1997 (Eurostat 1998a,b).

Vegetables commonly exported from Africa include asparagus, snow peas, fine beans, round beans, baby carrots, baby corn, hard-shell garden peas, Brussels sprouts, broccoli, chilies, and globe artichoke. Avocado, mango, passion fruit, and pineapple make up the bulk of the fruit export. Considerable amounts of Asian vegetables are imported into the United Kingdom from Kenya. Recently, African countries have started shipping roses and some other flowers to the EU.

Several reasons have been advanced for the boom in horticultural export from Africa (Jaffee 1995; Barrett et al. 1997; Dixie 1999; Malter et al. 1999). Trade agreements such as the Lome convention give preferential treatment to African exports in the European market. African governments have recently engaged in privatization of government enterprises, enacted less restrictive business laws, and provided incentives for export. International corporations have tied up with African counterparts and transferred technology, provided logistics, and created market identity and penetration for African products. Several African countries have formed regional economic groups combining business activities, technical know-how, market information, and technical manpower to increase their competitiveness.

The competition for export to Europe may increase in the future as more African countries enter the marketplace. Trade liberalization policy adopted by the EU will also bring countries from outside Africa into competition after 2008 (Stevens and Kennan 2000). Fresh produce consumption in Europe is expected to grow at a relatively slow rate because of limited population growth and the current high level of consumption. The consumers, on the other hand, will increasingly look for more variety and hazard free (organic) produce. Products with quality characteristics such as fresh appearance, eating quality, little waste, and positive health effects will be in demand (Smits 1989).

COMMODITY CHAIN FOR NONTRADITIONAL AFRICAN CROPS

Commodity chain describes the connections between different enterprises involved in the design, production, and marketing of a finished product. It can be divided into two types, producer driven and buyer driven (Gereffi and Korzeniewicz 1994). Commodities requiring heavy capital and technology investments are producer driven and controlled by companies with key technologies and production facilities. On the other hand, production of buyer driven commodities are usually labor-intensive and retailers and brand name companies exercise key governance functions. These companies do not produce the commodities themselves but focus their activities on the design, retailing, and marketing as well as organization of chain itself. Global commerce in agricultural commodities fits into the buyer driven model. The commodity chain for international fresh fruit and vegetable trade is made of retailers, importers, exporters, and growers (Dolan et al. 1999; Dolan and Humphrey 2000).

Retailers

There are two main retail outlets for fresh produce in the European market: (1) traditional greengrocers and vegetable markets, and (2) supermarkets and major retail chains (multiples). The market share of traditional outlets have steadily declined and the major portion of fruits and vegetables is now sold through multiples. They account for 90% of fresh vegetable sales in Sweden (Smits 1989) and 76% of fresh fruit and vegetable sales in the United Kingdom (Dolan et al. 1999). Traditional retailers purchase their stock from the wholesale market. Wholesalers also supply fresh cut flowers to individually owned flower shops. Wholesalers, in turn, source their inventory from domestic suppliers and importers. Since multiples are chain operations dealing in very large volumes, they bypass the wholesalers and deal directly with the suppliers and importers.

Functions of multiples in the supply chain of nontraditional crops are as follows: (1) make produce available for consumer use, (2) advertise the product to increase sales, (3) supply value added products, (4) keep track of consumer preference, (5) monitor suppliers, and (6) set the retail price for the fresh produce based on the supply and demand factors and market competition.

Supermarkets employ various strategies to draw customer attention to fresh produce. Fresh fruits and vegetables are placed unpackaged on the shelf and customers are allowed to self-serve. This gives customers satisfaction that they purchased the best quality produce and items finally left on the shelves by customers allows stores to judge the quality standard of their supply source. Multiples try to maintain consistent quality of fruits and vegetables throughout the growing season so that customers know what to expect. They make sure that shelves are stocked at all times because shoppers switch stores if products are not available at the time of shopping. Retailers are increasingly giving more shelf space and nudging customers toward fresh value added products which command higher profit margins. Vegetables are washed, chopped, and mixed so that they are ready-to-use as salads or stir-fry. Different fruits are also washed, peeled, and mixed into ready-to-eat packages. Buyers have responded favorably to this promotion because it fits well into their busy life style. Supermarkets have also been increasing the number of fruits and vegetables offered to meet consumer demand for variety.

To comply with the existing food safety legislation in most European countries, retailers have developed systems that trace products from the field to the supermarket shelf (Marsden and Wrigley 1996). Since retailers are often held responsible legally or through consumer and non-government organizations for labor and environment standards in the supply chain, they also monitor compliance by their suppliers in these areas. Multiples invest heavily in the development of supply chain to identify and retain suppliers who repeatedly deliver contracted produce of high quality in a timely manner.

Importers

The procurement of fresh fruits and vegetables by the EU from Africa is handled through importers. Once multiples and wholesalers decide on items, quantity and delivery schedule of imports, procurement orders are placed with appropriate importers. The European importers in turn contact Africa based exporters to source produce on the ordered schedule. Importers obtain produce from a number of countries based on the

growing season for crops in different countries. At a particular time of the year, however, shipment comes from only one or two countries. Importers share in the responsibility of enforcement of standards established by the retailers. For this purpose they visit African suppliers several times during the year. Some importers have permanent staff in Africa to ensure compliance and provide technical assistance to African exporters. A number of importers also have equity stakes in African export companies.

Exporters

Until the early 1990s, importers bought produce from a range of exporters based on the availability and price. However, as multiples became the prime outlet for imported fresh fruits and vegetables and the volume of import surged, the preference shifted in favor of large exporters. They were perceived as more dependable in their ability to supply year-round bulk volume of superior quality produce.

Exporters are not just shippers of produce but also the primary party in Africa responsible for meeting the supply chain requirements set by retailers. These firms need the capability to work closely with European importers, organization to deal with growers to meet volume and quality requirements, capital to invest in transportation and postharvest facilities, ability to benefit from governmental incentives, and connections to bypass bureaucratic hurdles. As a result, only a few large firms within each country succeed in this venture.

Exporters work closely with growers from planting to harvest to ensure production of high quality produce and compliance with European standards of food safety and labor practices. They provide training to farmers in safety, labor law, and quality management. To comply with “due diligence” requirement of European law, exporters also oversee the use of chemicals on produce grown for export.

Fruits and vegetables are perishable commodities. The freshness of the produce on the retail shelf depends to a great extent on how it is handled after harvest. Field heat of the harvested crop has to be removed as soon as possible and the surface washed and disinfected to prevent bacterial and fungal damage. To this end, products need to be placed in shade immediately after harvest, transported in refrigerated trucks to packing facilities, cooled, washed with chlorinated water, graded, and packed under controlled humidity and temperature. Facilities for postharvest handling including cold storage chambers require considerable investment. Not many growers have capital or expertise to undertake postharvest processing. Therefore, specialized processors or exporters themselves assume this function.

Multiples are increasingly focusing on activities that add value to their products (Boehlje et al. 1998) and at the same time pushing product processing to the source of supply. Adding value to fresh vegetables and fruits is labor intensive and can be carried out more economically in Africa because of the availability of cheaper labor. Shipment cost of processed products is also lower because of high value-to-weight ratio. Processors and exporters are happy to assume the added task because of high profitability in added value produce processing. However, constructing, maintaining, and operating facilities for processing, packaging, and bar coding of ready-prepared vegetables, fruits, and salads require a great deal of capital investment. These facilities also must comply with stricter hygiene regulations.

Flexibility and reliability of supply is essential for large scale retail operations. Multiples do not like to keep a large inventory of perishable products, but at the same time want to be sure that store shelves are full at all times. It is only possible if stocks of product are kept in the supply chain and the movement of products from farm to supermarkets is expeditious. Essentially, under this supply management scheme, retailers transfer inventory control to exporters who must establish proper control systems and bear related costs (Hughes 1999). Thus, logistics becomes a core competence needed by exporters and they must invest in computerized supply chain management with proper hardware and software to track sales, orders, storage, delivery, transport, billing, and receipt.

Exporters are also expected to participate in the promotional activities of the supermarkets. The standard promotion mode of advertising fresh fruits and vegetables is to lower the on-shelf price of certain commodities for a short duration or give away extra produce at no additional cost (Chetwood 1997). Thus, exporters must have the cash flow to withstand temporary losses in hope of future gains.

Most fresh produce is shipped via air to ensure fast and reliable delivery. Exporters, at present, are facing major hurdles to their trade due to limited air cargo space and high airfreight cost from Africa to Euro-

pean destinations (Barrett et al. 1997). To ease this problem, many exporters are entering into joint venture with freight forwarding companies which enables them to consolidate their shipments with other cargo and take advantage of reduced airfreight rates for large volume.

Growers

Entities producing export commodities can be grouped into three types: (1) exporter owned or leased farms, (2) large commercial farms, and (3) small farms. In the beginning of the fresh produce export from Africa, most of the crops were grown on small farms. In 1992, approximately 75% of fruits and vegetables for export from Kenya were produced by small holders (Harris 1992). African fresh produce were in demand only during the season they could not be grown in Europe. Gradually, Europeans expanded procurement year-round and increased the variety of fruits and vegetables purchased. The volume requirement thus skyrocketed and drew commercial farms and export firms into cultivation of fruits and vegetables. By 1998, four of the largest exporters in Kenya were sourcing only 18% of their produce from small farms, while 42% came from large commercial farms, and 40% from exporter owned or leased land (Dolan and Humphrey 2000).

Exporter Owned or Leased Farms. To increase the profit margin exporters have gotten into on-farm crop production. This way they gain control of all operations on the export side of the supply chain. It also makes harvesting to value added processing an integrated operation and oversight on labor laws, pesticide regulations, and safety compliance is easier. Growing crops on their own farms guarantees continuity of supply and reduces risk of losing suppliers to competition.

Large Commercial Farms. Large exporters prefer dealing with commercial farms because they can supply different products, meet large volume requirement for export transactions and are managed professionally. It is also not very difficult to monitor their compliance with various regulations. As the number of exporters have shrunk, the number of commercial farms growing fresh produce has grown.

Small Farms. The number of small farms producing crops for export has been steadily declining. Exporters find it convenient to deal with a few large commercial farms than with many small holders. Variations in crop quality due to non-uniform agronomic practices from farm to farm, logistic problems of overseeing compliance with pesticide use, child labor, and worker safety regulations, and difficulty of communicating with large number of growers make small growers less attractive to exporters.

In several African countries, foreign and domestic non-governmental agencies and governments have set up projects to bring more small holders into export oriented crop production. However, to enable small farmers to make prudent decisions, they should be given full facts about the benefits and risks of export crop enterprises including: (1) average income in good growing seasons and amount of loss from crop failure, (2) market price variability over time, (3) marketing institutions and their weaknesses and strengths, (4) higher input requirements and the need for credit, and (5) special production skills and quality control requirements. Evidence from different countries suggests that the income effects from diversification are positive and can help reduce income inequality among small farmers (Kennedy and Cogill 1987; Bouis and Haddad 1990; von Braun et al. 1991).

Labor intensive crops that require staking and picking of individual pods are suitable for production by small growers. While large farms have to hire outside labor and supervise them, small farmers use family labor which is both low-cost and self supervising (Collins 1995). Small holders compete favorably also in organic crop production. For small holder operations to be successful it is essential to have an adequate number of willing growers in close proximity. Farms should be located in areas with good road and transportation systems. Otherwise it becomes uneconomical to collect produce from the different farms and set up postharvest processing centers.

ENTRY OF NEW COUNTRIES INTO NONTRADITIONAL CROP EXPORT

Encouraged by the remarkable success of countries like South Africa, Kenya, Chile, and Peru, every developing country with a favorable climate has a program for nontraditional export crop development. Many African countries view this as a means of improving the livelihood of small farmers and creating new employment opportunities. They hope to repeat the success of small-holder farms in Guatemala in exporting nontraditional crops. Von Braun (1994) reported that production of export vegetables created new employment

opportunities, reduced the need to rely on uncertain off-farm employment, and increased household income of the smallest Guatemalan farmers. Countries like Tanzania, Zambia, and Zimbabwe have entered aggressively into the European market within the last few years with reasonable success. However, the market is getting crowded and competition is becoming fierce without much prospect of significant increases in the total trade volume. It is expected that countries already in the fresh produce export business will use their first arrival advantage and put up stiff resistance to anyone trying to enter this market.

The private sector usually is unwilling to bear the initial cost associated with the development of nontraditional crop export industries due to the high investment risk in this kind of complex venture. Therefore, national governments may have to provide early leadership and financial support in launching this industry. Governments may have to undertake feasibility studies, provide assistance in upgrading and developing resources, and offer economic incentive for the private sector to get into this trade.

Several production models for new crops are available (Clevenger 1989; Slobbe 1989; Smits 1989). A report published by the Ministry of Finance and Economic Planning, Government of Uganda describes the process and outcome of a study carried out to determine the opportunities for nontraditional agricultural exports from Uganda (Sergent 1993). Based on these studies, an outline for developing a nontraditional crop export industry is given below:

Potential Crops

Demand for fresh produce in the EU market is well known. Climate and soil of the country should be examined for suitability for the production of some of those crops. Temperature, rainfall, day length, and cloudiness during the growing season may affect crop yield and quality. Soil type, pH, and major and minor element requirements vary among crops. The nature of potential crops should be carefully studied to determine if they possess the ability to compete against indigenous weeds, insects, and diseases. It is also important to determine if the country has an advantage in climate and soil over existing and potential competitors. After screening for suitability for climate and soil, crops should be short-listed for further evaluation.

Production system of short-listed crops should be studied in countries currently producing the crop, preferably by site visit. This will give an idea of what problems can be expected in growing those crops, how to avoid major pitfalls, and the best management practices for growing them. Existing EU markets for potential crops should be studied. How saturated is the market with the short-listed crops, what are prospects for future growth, and how suited are the crops to additional processing to increase value? The quality standards for export produce are very strict. As a result, every export enterprise generates substantial quantity of number two grade produce. An existing domestic market or scope of developing market should exist for the disposal of produce left behind.

Estimates of potential foreign exchange earning from exporting the short-listed commodities under various policy scenarios over next one, two, five, and ten years should be made. Cost and net income of growing these export crops should be analyzed for the benefit of producers.

Growers should be approached and those willing to get into export crop production should be identified. An initial incentive and long term support plan should be drawn and offered to growers to draw their interest for the new enterprise. If possible, first one or two years of farm production should be covered under government guarantee purchase agreements.

Once the crops, producers, expected crop area, and yield quantity have been projected, these information should be put in the form of a proposal to contact EU retailers. Interest of multiples and their involvement in the production and postharvest handling methods development is essential to get foothold into the EU market. With a well thought out proposal, it may be possible to reach a tentative purchase agreement with one or two multiples.

Infrastructure

To assure successful production of crops, availability of inputs such as fertilizers, and chemicals on time and at reasonable price is essential. Outlets for the purchase and repair of farm machinery are needed to carry out cultural operations in a timely manner. Government should make sure that bureaucratic hurdles in the procurement of these inputs are removed and materials are readily available when needed. It is preferred that

the export crop production be located in clusters so that harvest can be collected easily and post-harvest facilities can be established in the vicinity. The production area should be close to a commercial airport and connected with goods roads to minimize the time between harvest and air-transport to the final EU destination.

It is desirable that the buying, consolidating, and export functions be integrated. This is for both economy and better control of supply channel. Potential exporters should be identified and government should work with them in developing adequate postharvest processing facilities, which include shades for processing, cold storage for cooling, and refrigerated trucks for transporting the produce to the airport terminal. Exporters may not be willing to be burdened with heavy debt and may also find it difficult to get loans through regular channels for such risky ventures. Government assistance may be needed for securing required loans at discounted rates by providing loan guarantees to lenders. Incentives such as allowing import of required machinery duty free, expedited export licenses, and an initial tax holiday may be needed to induce exporters to undertake new enterprise. Help from the government may also be crucial in establishing liaison between exporters and EU importers and multiples.

Institutions and Policies

Research and extension is critical to the successful production of introduced crops. Farming techniques unique to the new crops such as the selection of suitable varieties, time of planting, fertilizing, irrigating, and controlling weed, insect and disease have to be worked out at the Experiment Stations and then delivered to the farmers by the Extension Service. In most African countries, research and extension are state responsibilities. Experiment Stations will have to coordinate research with the EU multiples to meet their product specifications. Continued marketing research will be needed to find new and value added market opportunities, and adjust to ever changing quality regulations. Extension Services will need to publish crop manuals for handy reference by growers. In the beginning, there may be a need for the government to collaborate and bear some of the expense of market promotion with EU retailers.

In many African countries, land is owned by the government or collectively by tribes. Commercial agricultural companies lease the land from the government or local people. Large farmers will only make necessary investments in improving the land if they have guaranteed access to the land year after year under prior fixed terms. Government involvement may be required to arrange long-term leases to agricultural corporations. In the beginning, incentives such as free inputs of seeds, fertilizers, and chemicals, lower electricity or fuel prices for irrigation, a holiday from land taxes, and purchase guarantees on the produce may also be needed to attract growers to producing non-traditional crops. The incentives should be withdrawn gradually as growers start making reasonable profits from producing crops. Proper credit and investment channels is needed to meet the initial and continued needs of the industry.

The fresh produce market is very dynamic and new innovations are constantly taking place. A dynamic national policy on nontraditional crop production will be needed for any country to compete long-term in the international market. To succeed a country will have to periodically review and evaluate every phase of the production system including biophysical resources (e.g. soil, climate, cultivars), infrastructure (e.g. input suppliers, roads, vehicles, cold storage), institutions (e.g. cooperatives, banks, extension services), policies (e.g. subsidies, land policies, tariffs), and market (exporters, and domestic outlets). Interventions will have to be implemented promptly to remedy identified shortfalls.

REFERENCES

- Barrett, H., A. Browne, B. Ilbery, G. Jackson, and T. Binns. 1997. Prospects for horticultural exports under trade liberalization in adjusting African economies. Report submitted to the Department for International Development, Coventry University, Coventry, UK.
- Boehlje, M., L. Scradler, and J. Akridge. 1998. Observations on formation of food supply chains. Third Int. Conf. Chain Management in Agribusiness and Food Industry, Wageningen, The Netherlands.
- Bouis, H.E. and L.J. Haddad. 1990. Effects of agricultural commercialization on land tenure, household resource allocation, and nutrition in the Philippines. Research Rpt. 79. Int. Food Policy Res. Inst., Washington, DC.

- Chetwood, M. 1997. Effective in-store sales promotion at Safeway. In: C. Hart et al. (eds.), *Cases in retailing: Operational perspectives*. Blackwell, Oxford, UK.
- Clevenger, T. 1989. Increasing the market capacity for a new vegetable growing area. *Acta Hort.* 242:59–64.
- Collins, J. 1995. Gender and cheap labor in agriculture. In: P. McMichael (ed.), *Food and agrarian orders in the world economy*. Praeger, Westport, CT.
- Dixie, G. 1999. Summer citrus: The role and prospects for southern Africa. In: S. Jaffee (ed.), *Southern African agribusiness: Gaining through regional collaboration*. World Bank, Washington, DC.
- Dolan, C., J. Humphrey, and C. Harris-Pascal. 1999. Horticulture commodity chains: The impact of the UK market on the African fresh vegetable industry. Working Paper 96, Inst. Developmental Studies, Univ. Sussex, UK.
- Dolan, C. and J. Humphrey. 2000. Governance and trade in fresh vegetables: The impact of UK supermarkets on the African horticulture industry. Proc. 2000 Conf. Inst. Developmental Studies, Univ. Sussex, UK.
- Eurostat. 1998a. Leguminous vegetables, shelled and unshelled, fresh or chilled. HS 0708.
- Eurostat. 1998b. Other vegetables, fresh or chilled. HS 0709.
- Gereffi, G. and M. Korzeniewicz (eds.). 1994. *Commodity chains and global capitalism*. Praeger, Westport, CT.
- Harris, S. 1992. Kenya horticultural sub-sector survey. Kenya Export Development Support Project, Nairobi.
- Hughes, A. 1999. Constructing competitive spaces: On the corporate practice of British retailer-supplier relationships. *Environment & Planning* 31:819–39.
- Jaffee, S. 1995. The many faces of success: The development of Kenyan horticultural efforts. In: S. Jaffee and J. Morton (eds.), *Marketing Africa's high value foods*. World Bank, Washington, DC.
- Kennedy, E.T. and B. Cogill. 1987. Income and nutritional effects of the commercialization of agriculture in southwestern Kenya. Research Rpt. 63. Int. Food Policy Res. Inst., Washington, DC.
- Malter, A., A. Reijtenbagh, and S. Jaffee. 1999. Profits from petals: The development of cut flower exports in South Africa. In: S. Jaffee (ed.), *Southern African agribusiness: Gaining through regional collaboration*. World Bank, Washington, DC.
- Marsden, T. and N. Wrigley. 1996. Retailing, the food system and the regulatory state. In: T. Wrigley and N. Lowe (eds.), *Retailing, consumption and capital: Towards the new retail geography*. Longman, Harlow, UK.
- Sergent, A. 1993. Opportunities for nontraditional agricultural exports from Uganda: Summary report. Export Policy Analysis and Development Unit, Ministry of Finance and Economic Planning, Uganda.
- Slobbe, A. 1989. Marketing strategy for the introduction of new vegetables. *Acta Hort.* 242:83–86.
- Smits, P.J. 1989. Market development in western Europe in relation to vegetable diversification. *Acta Hort.* 242:21–30.
- Stevens, C. and J. Kennan. 2000. Will Africa's participation in horticulture chains survive liberalization? Working Paper 106. Institute of development Studies, Brighton, UK.
- Tropical Produce Marketing News. 1996. Dec.–Jan.
- von Braun, J. 1994. Nontraditional vegetable crops and food security among smallholder farmers in Guatemala. In: *Agricultural commercialization, economic development, and nutrition*. John Hopkins Univ. Press, Baltimore.
- von Braun, J., H. de Haen, and J. Blanken. 1991. Commercialization of agriculture under population pressure; effects on production, consumption, and nutrition in Rwanda. Research Rpt. 85. Int. Food Policy Res. Inst., Washington, DC.
- Watts, M. 1994. Life under contract: Contract farming and agrarian restructuring and flexible accumulation. In: P. Little and M. Watts (eds.), *Contract farming and agrarian transformation in sub-Saharan Africa*. Univ. Wisconsin Press, Madison.