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The Farmapine Model: A Cooperative Marketing Strategy and a Market-Based Development Approach in Sub-Saharan Africa

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Developing countries, especially those in Sub-Saharan Africa, rely on a few primary commodities and minerals as their main sources of revenue and foreign exchange. Ghana, a typical developing country, has relied on cocoa, gold, and timber, which together have accounted for more than 70% of export earnings. There was an urgent need to diversify Ghana's export base following the persistent decline in the prices of cocoa and gold in the 1980s and 1990s. Efforts to diversify the export base resulted in the promotion of wood, aluminum, marine products, and horticultural products—referred to as nontraditional exports (NTE)—along with tourism (ISSER, 2002).

Horticultural products in general and pineapples in particular have received a lot of support from the World Bank and the United States Agency for International Development (USAID; Boselie & Muller, 2002). The diversification efforts paid off, and pineapple has since become the most important agricultural NTE. Pineapple exports have increased from 2,600 metric tons in 1986 to more than 42,000 metric tons in 2002, earning the nation over $47 million (FAO, 2004). In addition, pineapple production has provided employment and income in the pineapple growing regions. However, the current industry structure and organization makes it very difficult to realize the full potential of the industry.

The main focus of this paper is to examine a marketing arrangement in Ghana—the Farmapine model—that has the potential of changing the industry structure and offering a means of realizing some of the potentials in the industry. Specifically, this paper examines the institutional arrangement behind the establishment of Farmapine and the inherent efficiencies in the model over existing arrangements. Secondly, this paper seeks to identify and discuss factors that will impact replication of the model by other producer groups in Ghana and other developing countries. To achieve the objectives of this study, 60 small-scale pineapple producers were surveyed, and information on their production and marketing activities was collected via questionnaires. Thirty of the small-scale producers were selected from the 172-member Farmapine cooperatives. The remaining thirty were selected from among the hundreds of noncooperative small-scale producers. In addition, twelve exporters were surveyed for information on their export and marketing activities. The twelve exporters were selected from the 16-member Sea-Freight Pineapple Exporters of Ghana (SPEG), an umbrella organization for exporters. This organization is responsible for over 90% of all pineapple exports from Ghana.

Pineapple Industry in Ghana

The pineapple industry in Ghana is composed of producers and exporters. There are three categories of producers: large, medium, and small-scale. Large-scale producers are producers with more than 100 acres of pineapple under active cultivation. Medium-scale producers have 50–100 acres under cultivation. Small-scale producers (also known as *outgrowers*) have less than 50 acres under cultivation. The majority, however, have less than ten acres under cultivation. Most of the large-scale and some of the medium-scale producers also operate as pineapple exporters, exporting their fruits mainly to Europe. Exporters buy approximately 40% of their export requirements from outgrowers

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under various arrangements. These arrangements are seldom characterized by formal contracts. An exporter may provide assistance—often in the form of chemicals, planting materials, or even cash advances—to an outgrower with the understanding that the outgrower sells his produce to the exporter. In most cases, outgrowers receive no assistance from the exporter. Exporters usually approach outgrowers when they need fruits to meet an export order, whereas outgrowers only contact exporters when their fruits mature.

Most of the producer/exporters usually try to produce the bulk of exportable fruits from their own farms, taking on all the production and marketing risks. This requires huge investments in land and equipment. They also face severe credit constraints, as they find it very difficult getting approved for loans (Obeng, 1994). The result is that they end up not being able to produce all the fruits needed for export. Thus, exporters are forced to rely on outgrowers. However, in the absence of formal contracts, outgrowers can be unreliable, often reneging on prior agreements and selling to other exporters offering higher prices. This scenario makes it difficult for exporters to enter into long-term contracts with their European importers. In addition, the quality of outgrowers' fruits cannot always be guaranteed, as exporters have no knowledge of the agronomic and cultural practices to which the fruits are subjected.

Outgrowers, on the other hand, also take all the production and marketing risks in their operations. During periods of high demand that occur during the winter months, outgrowers are assured of a ready market for their produce. At these times, exporters try to outbid each other for the outgrowers' fruits. However, when European domestic fruits become available in summer (especially June and July), outgrowers find it very difficult to sell their fruits (Obeng, 1994). During such times, some exporters would not honor prior agreements made to buy fruits from outgrowers. In some cases, exporters abscond after taking delivery of fruits. Outgrowers also have had to contend with delayed payments—sometimes as late as six months after fruits have been delivered. Given the above arrangements, neither the exporters nor the outgrowers were satisfied.

The Farmapine Arrangement

The Farmapine cooperatives were formed as a result of the unsatisfactory arrangements between outgrowers and exporters. According to the cooperative members, the cooperatives were formed to enhance their ability to attract help in producing and marketing their produce. Technoserve, a US-based development agency, has been assisting the cooperative members to improve their production and management practices (Boselie & Muller, 2002). The cooperative members, however, were still constrained by the lack of a reliable market source and lack of access to credit. The prevailing industry structure, coupled with their small sizes, made them helpless in overcoming these constraints. Stanton (2000) has identified small sizes as the underlying factor in most of the challenges rural producers face, and suggests the formation of cooperatives as one way of overcoming this problem.

In 1999, the World Bank, under its agricultural diversification program, provided $1.4 million for the formation of Farmapine Ghana Limited (FGL). The money was to be repaid in 10 years at a 7% interest rate. FGL is a marketing concern that processes and exports the farmers' produce. It is owned by members of five farmers' cooperatives and two former producers/exporters. The five cooperatives have 80% ownership; the former exporters hold the remaining 20%. Once the World Bank loan is repaid, the cooperative members will be able to share in any profits resulting from operations. The cooperative members sell their fruits to FGL for processing and export. The whole arrangement is guided by formal contracts signed between FGL, the cooperatives, and cooperative members. Membership in these cooperatives was initially open to all pineapple producers. Once FGL was formed, new members were no longer accepted.

Pineapple was selected for support due to the following reasons. It is an exportable crop with a ready market in Europe and has a relatively shorter gestation period. Moreover, the farmers' cooperatives were already formed and active. The limiting factors were access to the European market in the form of reliable importers or buyers and in-depth knowledge of the export market. To overcome this, the two former exporters were included as shareholders in the FGL arrangement. Farmapine was incorporated in March 1999 and commenced operations in September 1999. A managing director hired by the board of directors oversees day-to-day operations, assisted by three production managers and an export manager. The board is made up of the presidents of the five farmers' cooperatives, the two former exporters, the managing director, and a representative from Technoserve.

The cooperative members receive chemical inputs on credit from FGL, which is repaid when their fruits are harvested. This significantly reduces

their financing needs, as the cost of chemicals constitute the single largest variable-cost item in pineapple production. The cooperative members do not receive any other credit facilities. Output price is negotiated at the beginning of the growing season and reviewed periodically to reflect prevailing prices in the industry. More importantly, the price is indexed to the US dollar, and payment takes place approximately 2–5 weeks after harvest. Indexing the price to the dollar offers protection against depreciation in the local currency. This arrangement guarantees payment to the cooperatives' members once fruits are supplied to FGL.

Additionally, the cooperative members receive technical advice from the production managers at FGL. The production managers act as extension officers or field specialists and assist the farmers with any challenges they face in production. They coordinate the planting and harvesting activities of the farmers to ensure that they fit into the overall export program of FGL. They also advise and monitor the level of chemical usage by the farmers to ensure that they conform to export standards. Farmers affiliated with FGL still have to bear the production risk. However, this risk is reduced considerably due to the advice, interaction, and monitoring of their farming activities by the FGL field specialists.

Farmapine, on the other hand, is assured of quality fruits to meet its export obligations. It is able to negotiate favorable prices for its exports, based on its ability to provide a steady and reliable supply of quality fruits. Although FGL takes on all the price risk, it is able to sign contracts with importers and thus transfer the price risk to the importer.

As mentioned previously, Farmapine supplies chemical inputs to the cooperative farmers on credit. In order to do this, Farmapine usually requires financing from banks and other funding sources. Financing is a constraint for individual cooperative members, but because Farmapine is a larger entity with professional management, it is able to obtain financing from institutions at more favorable terms. Additionally, it is able to buy larger quantities of chemicals at significant discounts.

Performance of Farmapine

Farmapine has been profitable since its inception in 2000 and is the second largest exporter of pineapples from Ghana. In 2003, Farmapine exported 4,854 mt of pineapples valued at $1.52 million. Cooperative members are able to consistently achieve exportable yields of 65% or more from their fields, which translates to guaranteed profits of about $1,000 per acre.[1] On average, cooperative members cultivate five acres, and thus earn about $5,000 per growing season. This amount is significant when compared to Ghana's per-capita gross national income of $320 (World Bank, 2004a). Profits for FGL and the outgrowers are expected to increase further as planted acreage and exportable yield increases.

Outgrowers not affiliated with FGL achieve lower exportable yields of 50% or less, translating to profits of $500 per acre. This profit also carries a greater degree of uncertainty, whereas profit for the FGL outgrowers is almost given. The non-FGL outgrowers also face higher variations in their yield due in part to the lack of technical support in their operations and their inability to strictly adhere to recommended rates when applying chemicals. The noncooperative farmers have to rely on inadequate extension support from the Ministry of Food and Agriculture (MOFA). They are also severely constrained by the high cost of chemical inputs, which is further compounded by the absence of loans or credit of any kind. This causes them to ration the quantities of chemicals they apply on their farms, contributing to the low yields and the variation in yield. Both sets of outgrowers sell their "export rejects" on the local market for $0.01–0.04/kg compared to the export price of $0.10/kg.

Total land available for pineapple cultivation is about the same for both sets of outgrowers. However, planted acreage by the cooperative members is higher on average than that of the noncooperative members. The cooperative members average five acres, while the noncooperative members average less than two acres. In addition, the cooperative members are very intent on expanding their farms. This contention is evidenced by the more than 50% of cooperative members who have leased more land or are in the process of leasing more land. This clearly indicates that they are optimistic about the future of their operations and the pineapple business in general. The FGL cooperative members are mostly full-time farmers; farmers not affiliated with FGL tend to have other occupations. The cooperative members have on average two full-time workers and also employ temporary workers for land clearing and planting operations.

Replication of the Model

The apparent success of the Farmapine concept begs the question: How feasible is it to replicate the model for other producer groups in Ghana and

in other developing countries? Based on the working of the Farmapine model, four important factors have been identified for successful replication of the model. The most important and fundamental factor is the existence of cooperatives or organized farmers' groups. In the Farmapine arrangement, the cooperatives were active and already working with Technoserve (Boselie & Muller, 2002). This trait contributed to the successful implementation of the program. If no entities such as Technoserve exist, extension and development specialists could help organize interested farmers or producers into viable groups.

In addition to an existing cooperative, funding is critical for the successful implementation of any such program. Funding is needed for any facility or infrastructure needed to process and market produce. Small-scale farmers in developing countries find it very difficult to get approval for loans and usually do not have enough equity of their own. One way out is for governments to provide grants or credit guarantees to producer groups to establish any such program. Groups relying on governments for support would have to compete for funds with national development needs such as health care, basic education, and so forth. A workable solution would be for the small-scale producers to join forces and form cooperatives or producer groups. These groups can explore funding sources that would not be available to the individual members (Stanton, 2000). The producer groups can work with development specialists who can direct them to viable sources of funding and help them meet the selection criteria for funding. A potential source of funding would be donor agencies that fund and support a variety of projects in developing countries. In 2002, average per-capita aid for the 688 million people in Sub-Saharan Africa was $28.20 (World Bank, 2004b).

Development specialists have a larger role in the success of any such arrangement. They are especially needed to organize producers into active cooperatives. These specialists could work with producers to form cooperatives where none exist, or they could help established cooperatives to embark on productive ventures. In the Farmapine arrangement, development specialists from Technoserve contributed significantly to the establishment of FGL and continue to support the outgrowers in managing their operations. Similarly, development specialists were very instrumental in the success of New Generation Cooperatives (NGC)—a cooperative arrangement prevalent in North America with structures similar to the Farmapine model. Fulton (2001) lists the supporting role of rural development officers among the factors that have accounted for the spread of NGCs in the United States.

Finally, successful implementation of Farmapine-like arrangements requires a marketable produce—preferably one with a shorter gestation period. A healthy demand for any product reduces the marketing constraints and offers the hope of recouping any investments made. Pineapple is ideally suited for this kind of arrangement because of the huge demand it enjoys in Europe and its short gestation period (12–14 months). Based on these requirements, products such as papaya, yams, cassava (processed into chips or starch), assorted vegetables, and others would also be suitable for such ventures.

In addition to the factors described above, an important and related issue that would impact replication is the organizational structure of the group. The current cooperative structure of Farmapine may not be an optimal structure for some producers. To enhance replication, some producer groups may find it beneficial to adopt alternative organizational structures. Fulton (2001) describes the dynamic nature of NGCs in adapting to local conditions as a contributing factor to their success. One popular option that US producers have been using in forming joint ventures is formation of Limited Liability Companies (LLC) (Jorgensen, 2005). An LLC offers more flexibility in organizing a joint venture or business activity. Individual producers could form an LLC as an alternative structure to engage in productive activities that add value to their produce. (A more detailed description of LLCs and brief descriptions of other corporate forms can be found in Meehan-Strub and Harris, 2004.)

Concluding Remarks

The Farmapine arrangement has proved more successful than conventional arrangements. Farmapine outgrowers make higher profits and face lower risks than outgrowers not affiliated with FGL. The arrangement has been successful in increasing farmers' income, generating employment, and stemming migration to the cities in search of jobs. In addition, the cooperative members have been active in their communities, funding the building of schools and providing other basic amenities. The Farmapine model could serve as a sustainable model for rural development in Sub-Saharan Africa.

Replication of the Farmapine model is feasible granted that certain factors previously described are in place. The key ingredient needed to

bring all the factors together and enhance replication of the model in the subregion is government commitment. A committed government would serve as a facilitator to bring all the factors together to pave the way for a successful implementation of any such program.

Note

[1] This is based on average plant population of 20,000/acre, average fruit weight of 1.5 kg, output price of $0.10/kg, and a production cost of $1,000.

For More Information

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