



## Are E-Grocers Serving the Right Markets?

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### Buying Food Online?

Prior to 2003, the biggest news in the E-grocery sector had been the dramatic implosion of high-profile operators. Silicon Valley and Wall Street saw “dot.bombs” in many sectors during the 1990s, but failings in the grocery business seemed magnified due to unique supply chain relationships and, most importantly, strong consumer expectations about product and service quality that do not disappear when customers move online. Online grocers like Webvan were among the myriad of startups that failed to balance true market potential with their investment in technology and business strategy. Some firms simply subsidized online operations as long as they could as an “experiment” before giving up; reasons for these failures ranged from market selection problems to corporate culture and commitment. Others simply tried to run before they had crawled. Some thought that new technology offset the need for strategic ways of dealing with known consumer expectations and industry practices—and failed accordingly. The exit of Publix Supermarkets from the E-grocery arena illustrated risks from trying to build such an enterprise in areas with limited online subscribers or consumer suspicion of online purchasing. Despite these early stumbles, the E-grocery market rebounded and has grown dramatically since 2003. New entrants—many of them traditional grocery retailers venturing into E-commerce—are offering more products and services to broader geographic areas. The question we address here is whether surviving E-grocers are entering the right markets—ones containing enough of the kinds of customers inclined to use this service and generate profits—and what a right market looks like.

Consistent estimates of current market size and projected growth in the E-grocery industry are elusive targets.

### What is an E-grocer?

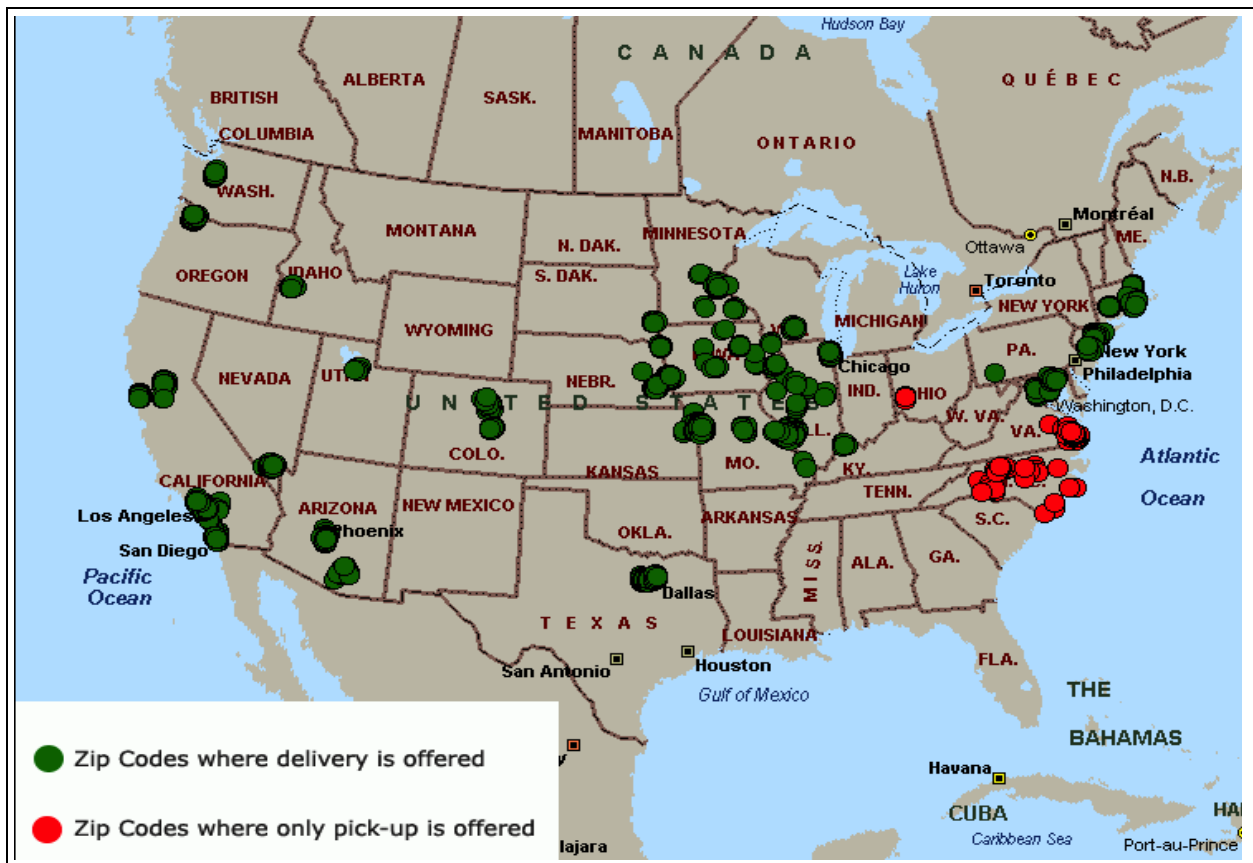
E-grocers use the Internet to sell perishable and nonperishable grocery items. Products are ordered online for delivery or pick-up. E-grocers are divided into two categories: *Bricks & clicks* are traditional grocers that also offer Internet-based ordering; *Pure plays* organizations lack traditional grocery stores.

In 2002, sales for online food, beverages, and groceries were estimated to range between \$4.25 billion (Keenan Vision) to \$6.4 billion (Yankee Group). Forrester Research called 2002 online grocery sales at \$5 billion. A more recent estimate by Jupiter Research predicts that online grocery sales will hit \$2.4 billion in 2004, or 0.4% of the total grocery market of \$570 billion. By 2008, the estimate grows to \$6.5 billion, just 1% of the total forecasted market of \$641 billion, but showing an annual growth rate of 42%. Clearly this sector continues to grow:

- Safeway.com doubled its business in two years (2001–2003) and expected it to double again in 2004.
- Ahold-owned Peapod reports that it has 150,000 active customers in its system, which includes Chicago and parts of the East Coast. By 2006, Peapod expects to nearly double its reach to areas serving 14 million potential households.
- In 2004, New York-based pure play Fresh Direct had 100,000 active customers—four times the number of just a year earlier.

### What are the Right Markets for E-Grocers?

A major factor in determining the future viability of the E-grocery sector is understanding whether these retailers are entering and servicing the right markets. Based on a comprehensive literature review and our research group’s previous firm, manager, and consumer research, the characteristics of an “ideal” E-grocery consumer can be identified (see papers and presentations at <http://aede.osu.edu/programs/e-agbiz>). Age, gender, household income, household size, and level of education are key indicators of willingness to buy food online. Factors such as computer literacy and access, time pressure, and focus on convenience also play a role. The question becomes



**Figure 1.** Zip-code-level distribution of E-grocery service—September 2004.

whether sufficient densities of customers with ideal characteristics show up in the markets in which E-grocers operate. Information we gathered from E-grocery managers in 2001 and 2004 indicated they generally recognize the value of these variables but were inconclusive on the role they played in selecting markets to enter. Marketing managers of grocers who were less active online appear to discount the importance of time/convenience and focus more on household income as a potential indicator of online grocery acceptance.

### Are E-Grocers Targeting Ideal Consumers?

To explore the proportion of ideal E-grocery consumers in markets currently serviced by firms, we first obtained a list of 2003's top 75 grocery stores (based on sales) and iden-

tified their subsidiaries, creating a list of 143 different grocery chains. To this list we added all full-service pure-play E-grocers identified in our previous research. Each grocer's website was visited to determine whether they had full-service E-grocery operations. Of the 143 firms, 23 operations offered delivery and/or pick-up of both perishable and nonperishable items (see Table 1). These firms operate in 26 states and the District of Columbia, with most in large cities such as Los Angeles, New York, Detroit, and Salt Lake City. Seventeen are bricks-and-clicks and six are pure plays. Some offer delivery within 30–40 minutes of placing an

order; others offer next-day delivery in a temperature-cooled tote.

Service areas for these E-grocers were determined at a zip code level from their websites, creating a database of 1,371 distinct areas out of the more than 29,000 zip codes nationally. Using a commercial zip code-level database (Microsoft MapPoint), a socioeconomic analysis was completed for each market currently serviced by one or more E-grocer (Figure 1). This analysis considered key demographic measures: age, gender, household income, level of education, and size of household. Other characteristics, such as number of households with Internet access,

#### ***Ideal E-grocery consumers are:***

- women, aged 35 to 44;
- college educated;
- in households with income greater than \$50,000;
- more likely to have children; and
- looking for convenience and therefore less price sensitive.

**Table 1.** Number of zip codes serviced by individual E-grocers by type and state—September 2004.

	Zip codes serviced	States serviced
<b>Bricks &amp; clicks—delivery<sup>a</sup></b>		
Stop & Shop (Ahold)	80	CT, MA, NY, RI
Giant (Ahold)	21	D.C.
Safeway	16	CA
Vons/Pavilions (Safeway)	178	CA, NV
King Soopers (Kroger)	55	CO
Albertsons	383	WA, OR, ID, NV, TX, CA
Acme (Albertsons)	54	PA
Hy-Vee	226	IL, MO, KS, NE, IA, SD, MN
D'Agostino's	31	NY
Schnucks	162	IL, MO
Bashas	55	AZ
<b>Bricks &amp; clicks—pick-up<sup>a</sup></b>		
Lowes	33	NC, SC
SentryontheGo	18	WI
Norkus	14	NJ
Santoni's	27	MD
Dorothy Lane Markets	3	OH
FarmFreshMarkets	28	VA
<b>Pure play<sup>b</sup></b>		
Peapod (Ahold)	41	IL
YourGrocer	47	NY
Fresh Direct	58	NY
Whyrunout	57	CA
Xpress Grocer	38	NY
Simon Delivers	55	MN

<sup>a</sup> "Bricks & clicks/delivery" refers to traditional grocery stores offering E-commerce and delivery or pickup at the store.

<sup>b</sup> "Pure play" firms have no traditional store front.

adults with a credit card, average commute time to work (a proxy for "time-starved" consumers), and the average amount that households

spend on food, were also assessed. These data are key to determining whether E-grocers are currently serving markets with a large proportion of ideal consumers.

### What We See...

Initial analysis of our work suggests that households in areas serviced by E-grocers have the financial and technical means, tools, and time-starved incentives to purchase groceries online. There also appears to be a critical mass of optimal consumers for E-grocers to target within these zip codes, because they contain three times more people and households than the national average. Household incomes in these zip codes are \$10,000 greater than the national average, and households spend about \$1,000 more per year on groceries than average. These households have three times more 25- to 44-year-olds and teenagers, indicating a significant likelihood of both higher spending on food and time constraints on routine household activities such as grocery shopping. Gender does not appear to play a role, separate of the fact that E-grocery service is offered in high-population areas having more of both women and men. Zip codes currently targeted by E-grocers have households that are three times more likely to have credit cards and to adopt E-commerce more generally—other leading indicators of market potential. A final indicator of the importance of convenience is that wage earners in zip codes targeted by E-grocers are three times more likely than average to commute 45 minutes or more. These findings indicate that, to some extent, existing E-grocers seem to be targeting the correct geographic areas. What is less clear to

us, and yet to be clarified by research, is whether these geographic selections are truly intentional or merely ones of convenience. Given the nature in which this industry has emerged, there is evidence to suspect both scenarios.

Questions remain as to the future adoption rate of online grocery shopping by consumers. After four years of research and observation in this area, we can be reasonably confident that although analysis typical in location decisions for traditional grocery stores may have some value in deciding where to offer online sales of groceries, other variables are potentially more important. Convenience and consumer comfort with the technology are logical considerations. These factors are more likely to drive the proportion of households that adopt within a service area than to indicate which new zip codes are optimal for growth. Time-starved consumers, or those facing other constraints on their ability to shop traditionally, are primary drivers of expansion in this sector. As internet and E-commerce adoption continue to grow, it remains to be seen how much advantage is gained by targeting the right geographic regions suggested by our research and when such service will become sufficiently efficient and accepted to be seen as a mass market practice making the selection of individual geographic markets less important.

*Casie Berning is a former undergraduate student; Stan Ernst is an outreach program manager; and Neal H. Hooker is an assistant professor. This work is part of a broader longitudinal study of online food retailing (see <http://aede.osu.edu/programs/e-agbiz>).*





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

Godfred Yeboah

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

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 renege 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.<sup>1</sup> 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 repli-

cation 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

<sup>1</sup> 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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