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**Developing Country Family Farmers' Strategic Response to Developed Country
Food Safety Standards: The Case Kenyan Green Bean Growers**

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1.0 Introduction

Developed-countries are the primary destination markets for developing country high value fresh fruits and vegetables. In the last one decade, these countries have increased their sourcing of high value fresh produce from third world countries to satisfy strong demand caused by growth in consumer incomes, urbanization and changing lifestyles (World Bank, 2005; Regmi and Gehlahr, 2005). This expansion has encouraged developing country farmers to rely on increasing amounts of pesticides to overcome pest and disease problems and supply aesthetic attributes (Thrupp, et al, 1995). This has led to developed country consumer concerns with medical health effects of pesticide residues in their food and pesticide exposure on farm workers. At the same time the food safety scares of the 1980s and 1990s (e.g., salmonella poisoning, mad cow disease) in developed countries have led to heightened consumer concerns on food safety.

In response to the above concerns, developed country governments have enacted strict legislations pertaining to pesticide residue limits in food and packer hygiene (Friedberg, 2004). Major retailers in developed countries have in turn developed both industry and own private protocols relating to food safety and traceability that often exceed official requirements. These protocols require all suppliers to i) adhere to prescribed pesticide residue limits, ii) maintain proper hygiene in their packing facilities and iii) establish a system of produce traceability. To ensure compliance with these

developed country food safety standards (DCFSS), developing country growers are closely monitored.

Producers in developing countries have to meet DCFSS as a prerequisite for entry and continuation in the lucrative export business, which is a major challenge. Large numbers of pesticides have been withdrawn from approved list and replaced by those perceived to be less toxic (which are usually more expensive). Producers are required to follow strict hygiene protocols to avoid produce contamination with pathogens and dirt in the packaging and holding facilities and document production and produce handling practices.

Meeting the DCFSS requirements involves imply i) switching to new safer but more costly pesticides and ii) investment in costly storage, packing and cooling facilities. In addition, growers must to keep detailed technical information related to pesticide usage and produce handling practices both in the farm and post harvesting handling. These requirements are capital intensive (Okello, 2005) yet producers in developing countries often face capital constraints and have poor access to credit facilities (Key and Runsten, 1999). Hence, there has been growing concern that DCFSS will exclude such farmers from the lucrative fresh export business (Mungai, 2004). Despite the concern, no study has to date systematically examined developing country farmers' response to the threat of being excluded from lucrative export business. This paper investigates how developing country producers have responded to DCFSS. In particular, it addresses two questions: i) What strategies have developing country growers used in response to DCFSS and with what outcomes? and ii) What key factors influence the success or failure of such strategies?

The paper focuses on Kenyan family farmers growing green beans for export to the UK. Kenya is one of the leading exporters of fresh vegetables to the UK while UK retailers have developed very strict food safety standards making it an informative case to study.

1.1 Brief historical context

Green bean production in Kenya dates back to the colonial era (the 1950s and 1960s). It stated as an off-season export crop with exports to the UK during the winter months. Since then the green bean industry expanded rapidly to become one of the most import export crops from Kenya. Production of green beans increased from approximately 6000 tons in the early 1980s to some 16000 tons in the early 1990s and 25000 tons in 2003.

Until recently, green bean production in Kenya was dominated by smallholder family operated farmers. Kimenye (1994) indicates that smallholders contributed to more than 70 percent of green bean production in the early 1990s. This dominance of smallholders has since changed. Recent studies (Dolan and Humprey 1999; 2000; Jaffee, 2003) indicate that the share smallholders has diminished while that of large scale outgrowers has risen. Jaffee (2003) suggest that smallscale family farms currently account for less than 40 percent of green beans grown for fresh export market. The decline in the share of small scale family farms is largely attributed to the challenges posed by DCFSS which were developed to address the food safety scandals of the 1980s and 1990s.

Developed country retailers, in response to public regulation and consumer concerns with the safety of their food formulated strict private food safety protocols and

passed them on to their suppliers in developing countries. These standards covered three areas: i) the use, storage and disposal of pesticides with major emphasis on pesticide residue limits, ii) packer hygiene which covered sanitation in the field, grading shed, and holding areas, and iii) traceability, i.e., documentation of production and hygiene activities.

2.0 Conceptual framework

This paper uses the concept of *exit*, *voice* and *loyalty* (compliance) developed by Hirschman (1970) and applied by World Bank (2005). Although used in the context of consumer response to deterioration in the quality of industrial products by Hirschman, the concepts can be extended to and applied to agriculture. According to Hirschman, *exit* occurs when consumers become dissatisfied with the quality of a product made by a firm or the price is too high. The consumers, due to their dissatisfaction, switch to another firm's product or service. It is a way of signaling to the old firm that it needs to rectify the mistakes that have led to the deterioration of the quality or increase in price of its products. The switch to other firms could be permanent especially if the firm does not respond to decline in sales of its products by correcting the mistake. However, Hirschman's thesis is that exit is used to discipline the firm and is therefore temporary, lasting only up to the time that the old firm corrects its mistakes and restores the quality of its goods/services. In other words, exit leads the firm to rectify its failures in order to maintain market share.

Apart from exiting, a firm's clients can choose to communicate their dissatisfaction with product quality by expressing it verbally. This is called *voice*. Under

this strategy, a firm's clients can petition it through complaints or take part in collective action in form of protest, riot or threaten to boycott the product in order to get the attention of the firm to remedy the problem. In addition the clients can lobby the relevant authority to have the firm address the quality issues they are concerned about. Like exit, voice is intended to call the firm's attention to its failings and get it remedy the situation. A key difference between exit and voice is that the former is dichotomous while the latter is continuous. That is, whereas the only recourse available to disgruntled clients is to under exit is to switch to an alternative firm or product, the client can signal the attributes they require under voice strategy. Voice can especially be costly to a firm because of the uncertainty of the outcome.

Lastly, a firm's clients when dissatisfied by its goods/services can choose to stay on hoping that the situation will improve, a strategy referred to by Hirschman as *loyalty*. Rather than exit or voice their problem, clients stay with the hope that the problem is transitory and normalcy will return. Loyalty makes exit less likely and gives more scope to voice. In our analysis we can tie loyalty to the level of investment in the object of loyalty. This can be viewed as investment in social capital or into specific assets that have little alternative value.

Consider now a family farm that has been growing high value produce for a buyer under a formal agreement in which the parameters of the contract are specific physical quality attributes and volume requirements (to be met by the farmer) as well as the price to be paid by the buyer. The buyer in response to changed market requirements develops a list of requirements that the family farm must meet besides existing terms of the contract. Assume also that meeting these requirements entails investment in costly

facilities/assets. In the context Hirschman's conceptual framework, the family farm due to dissatisfaction with the buyer, can respond by shifting to buyers that do not have additional demands or terminate the contractual relationship by quitting (*exit*). The family farm can alternatively keep the contract but actively attempt to influence the buyer to change its new demands through negotiations, protest, threats and complaints (*voice*). Lastly, the family farm can choose to keep the contractual relationship and adapt to the new demands of the buyer. This is the equivalent of *loyalty* in Hirschman's characterization. However, following the World Bank (2005) and in the context of meeting the DCFSS we refer to it as *compliance*.

3.0 Data and empirical methods

This paper uses information collected through personal interviews of family farmers producing green beans for export to United Kingdom conducted between October 2003 and June 2004. Information from farmer interviews were supplemented by interviews with existing green bean marketing/farmer groups (leaders, members and employees); green bean buyers and their field representatives; pesticide dealers and pesticide company sales representatives; government officials (including local extension officers); third party EUREPGAP certifiers; officials of Horticultural Crop Development Authority, Fresh Produce Exporters Association of Kenya, a major green bean canning company; and some non governmental organizations involved in the provision of technical support and services to green bean family farmers and farmer groups. Individual farmers as well as leaders of farmer groups that have quit production of green beans over the implementation of DCFSS were also interviewed to gain understanding of

reasons for quitting and the alternative enterprises such farmers switched to. Information from these interviews was supplemented with secondary information from government and industry statistical reports, industry newsletters, and international and local newspaper reports.

This paper focuses on smallholder producer's response to the introduction of DCFSS by two Kenyan exporters which were among the first to enforce DCFSS among its outgrowers. Both exporters supply produce to major supermarkets in the UK and are therefore also subject to stringent DCFSS requirements.

4.0 Exit, voice and compliance by Kenyan green bean family farmers

In order to put the impact of the DCFSS into perspective we start by reviewing the actions taken by the two leading Kenyan exporters, Exporter A² and Exporter B², in response to their UK buyer's demands on DCFSS. Both firms sourced their green beans from a large number of smallholder green bean family farmers before and at the time DCFSS were implemented. However, Exporter A in response to DCFSS developed its own code of practices that cover the requirements of its supermarket clients. Hence it epitomizes best case scenario of DCFSS enforcement and compliance. On the other hand, Exporter B has refined smallholder farmer group sourcing model and was among the first firms to introduce a workable traceability system among smallholder family farmers. The two firms therefore present suitable cases to examine.

4.1 Enforcement of DCFSS causes Kangundo smallholder family farmers to exit green bean production

² These are pseudonyms used to maintain anonymity

Prior to the DCFSS era, Exporter A sourced its green beans almost exclusively from smallholder family farmers. The major quality concern during these pre-DCFSS era was physical attributes of the beans, in particular size, shape, and spotlessness. In deed physical appearance was the primary attribute beans were graded against (Okello, 2005). To meet these aesthetic attributes, farmers often applied large quantities of pesticides without adequate protection (Okado, 2001). The pesticide containers were discarded without regard to safety threat it posed farm family and workers. In addition, little attention was given to the hygiene conditions within the growing fields, the packing facilities and the holding areas. Whenever available, grading sheds were dingy rooms with dirt floor, no washable tables and little ventilation (Jaffee and Morton, 1995). In mostly cases, beans were collected, graded and held under trees on roadsides awaiting collection. At the same time most beans were sold under spot market transactions. Whenever used, contracts between farmers and buyers were loose arrangements and almost exclusively verbal in nature (Jaffee and Morton, 1995). Such was the situation in green bean industry in early 1980s when Exporter A entered the green bean business.

Kangundo Division was one of the major sourcing areas for Exporter A. Exporter A was the exclusive buyer of green beans from the areas predominantly smallholder family farmers. Kangundo had a locational advantage compared to other producing areas. Its location just 75 km from Nairobi makes the cost of transporting green beans much lower compared to other growing areas like Mwea (140 km) and Mitunguu (over 200 km). At the same time the closeness of Kangundo made it easier for Exporter A to monitor and control supplies since reliability and consistency of green bean supplies were essential for success in export business in the pre-DCFSS era.

Exporter A started buying green beans from the Kangundo smallholder family farmers in 1991. At the time farmers were organized into eight loose green bean marketing groups (associations) comprising a total of more than 1, 600 smallholder family farmers. The farmers grew green beans exclusively for export and corn, tomatoes, kales, and field beans for home consumption and for domestic market. Green bean production was the most profitable enterprise among Kenyan smallholder outgrowers (Ngigi and Minot, 2003) hence the attraction of many Kangundo family farmers into the industry. The relationship between Exporter A and the farmers was informal. Exporter A did not have interest in the production and farm-level post harvest handling practices followed by the farmers but used double grading system to enforce compliance with the physical attributes, i.e., size, spotlessness and shape. Green beans were first graded at the collection centers by farmers in the presence of Exporter A's grading clerk and subjected to a second round of grading at Exporter A's packing facility located in Nairobi.

Starting 1993 Exporter A came under increasing pressure from its UK buyer to establish food safety management system. The buyer was in turn responding to the UK government's due diligence law which required that retailers take all possible measures to ensure that the food they sell is safe (Jaffee, 2003). As part of its food safety assurance system³, the buyer developed a code practices relating pesticide residue levels and packer hygiene and imposed them on suppliers including Exporter A. To enforce compliance with these DCFSS the buyer tightly controlled the movement green beans from Exporter A's farms to its warehouse in the UK. In the initial stages of implementing the DCFSS, the buyer regularly inspected conditions under which the beans were produced and the

³ In addition to this reason, some retailers used DCFSS to differentiate their produce from those of other retailers.

handling procedures followed by Exporter A. The inspectors at first only asked questions about the hygiene practices in the packing facilities and pesticides use practices in the farms (Jaffee, 2003) but later demanded changes in hygiene and pesticide use practices.

In August 1994, Exporter A’s UK buyer demanded that the latter must follow its (buyer’s) code of practices and also demonstrates compliance through third party certification for continued business. In response, Exporter A developed a list of requirements encompassing hygiene, pesticide use, and traceability standards that its outgrowers had to meet if they wished to remain in business (Table 1). Kangundo smallholder family farmers received the list in 1997. Exporter A gave them four months to comply with requirements failure to which it was suspend green bean collection.

Table 1: List of requirements needed to meet DCFSS

<p><i>Pesticide use practices</i></p> <p>Protective gear (gloves, mask, rubber boots, long sleeved overall, and hat)</p> <p>Bucket of sand</p> <p>Secured pesticide storage unit</p> <p>Well maintained knapsack sprayer</p> <p>Designated mixing container</p> <p>Designated stirring stick</p> <p>Secured pesticide disposal pit</p> <p>Incinerator for pesticide containers</p> <p>Graduated jar</p> <p>Permanent shower room</p> <p>List of approved pesticides</p> <p>Pesticide use training</p> <p>Pest scouting</p>	<p><i>Hygiene practices</i></p> <p>Grading shed (with washable and cement floor)</p> <p>Charcoal cooler and clean crates</p> <p>Permanent toilet</p> <p>Hand-washing facility/potable water</p> <p>Personal hygiene (headscarf/hat)</p> <p><i>Traceability requirements</i></p> <p>Farmers file</p> <p>Spray and production records</p> <p>Sprayer maintenance records</p> <p>Applicator’s health records</p> <p>Pesticide safe use notebook</p>
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Source: Authors’ compilation

The DCFSS requirements presented a major challenge for most of the Kangundo family farmers. Farmers particularly had difficulty constructing the grading shed and

charcoal cooler and switching to new safer but more costly pesticides. In deed, three months after Exporter A issued the list, only 68 of the initial (more than) 1600 farmers had met most, but not all, of the requirements indicating that farmers faced extreme difficulty complying with DCFSS. One of the main reasons for this difficulty is that the farmers had no access to credit and/or venture capital and were generally reluctant to sell some of their assets to invest in the DCFSS requirements (Jensen, n.d). One farmer, for instance, said:

“It is very hard to recover your cow or donkey if you sell it in order to invest in green bean production. The risks are just too high.”

The high risks are attributed to producer price fluctuations, especially where the buyers (i.e., exporters) pay the farmers a price based on the market price thus transferring market risks upstream to farmers as many Kenyan exporters do (Okello and Swinton, forthcoming).

In order to get more farmers to meet the DCFSS requirements, Exporter A relaxed its four-month deadline by two more months. However at the end of second deadline, most farmers had opted to stop growing green beans altogether. By this time the largest group among the initial eight farmer groups in Kangundo Division had shrunk to only 40 smallholder family farmers. Majority had exited green bean production just as hypothesized. In addition, some of the 40 farmers that remained in this (largest) group were yet to meet some of the requirements, especially those relating to construction of toilet, secured pesticide storage unit and/or bathing room in the farm. In some cases farmers annexed a pesticide storage unit on the family house allowing them to cut the cost by build only three of the four storage unit’s walls.

Among the remaining 40 farmers in the largest group, some of the partially compliant farmers resorted to negotiation (*voice*) for waiver of some of the requirements to remain in green bean business. Such farmers especially negotiated with Export A to be allowed to use family toilet and bathroom to meet the requirements for having permanent toilet and bathing room in their farms. They succeeded in convincing Exporter A that they did not need to have separate toilet and bathing room in the farm because the plots they used for beans were close to their homesteads (and hence family toilet and bathroom). However, only farmers who had met the rest of the requirements had these two requirements waived.

Farmers who did not meet the requirements or get waivers granted quit producing green beans. Majority of them turned to growing kales and tomatoes for the domestic market. However, these crops do not compare with green beans in terms of profitability. In addition, their markets are erratic and prices volatile. Hence the switch to production of domestic horticultural crops entailed significant reduction in farm income.

The sharp decline in the number of green bean growers in the area raised Exporter A's operating costs of sourcing beans from Kangundo area and reduced its margins. By early 1998, Exporter A had started experiencing difficulty recovering its transport and other operating expenses due to bad roads and low volumes. Hence in September 1998, the company stopped operating in Kangundo, following an advance notice. Farmers who were still growing green beans were introduced to another buyer by Horticultural Crops Development Authority (HCDA). However the new buyer insisted that the farmers transport their green beans to the new buyer's premises in Nairobi for themselves. Since

the farmers did not have their own transport, the remaining ones opted to stop growing beans also.

4.2 From contract to chaos: Kagio green bean farmers' group resorts to voice in response to a contract demanding DCFSS compliance and collapses

Kagio green bean family farmers started growing green beans in the 1970s. Majority of them sold their beans mainly to spot market buyers (brokers). However, spot market for beans in Kagio, as in other producing areas in Kenya, was unreliable and farmers often lost their beans (and money) due to opportunistic behavior by some buyers. Some brokers collected green beans but did not remit the money or paid less than the agreed price while others did not collect beans when ready even if there was earlier arrangement to so. Due to these marketing constraints, Kagio family farmers mobilized themselves in 1994, with limited help from the area extension officer, to form Kagio⁴ Farmers Self Help⁵ Group. The group was formed as a marketing organization. It had 34 members at the time of its formation and aimed at helping farmers negotiate higher prices (due to increased bargaining power) and also get reliable buyers. It however took the group some time to start realizing these goals.

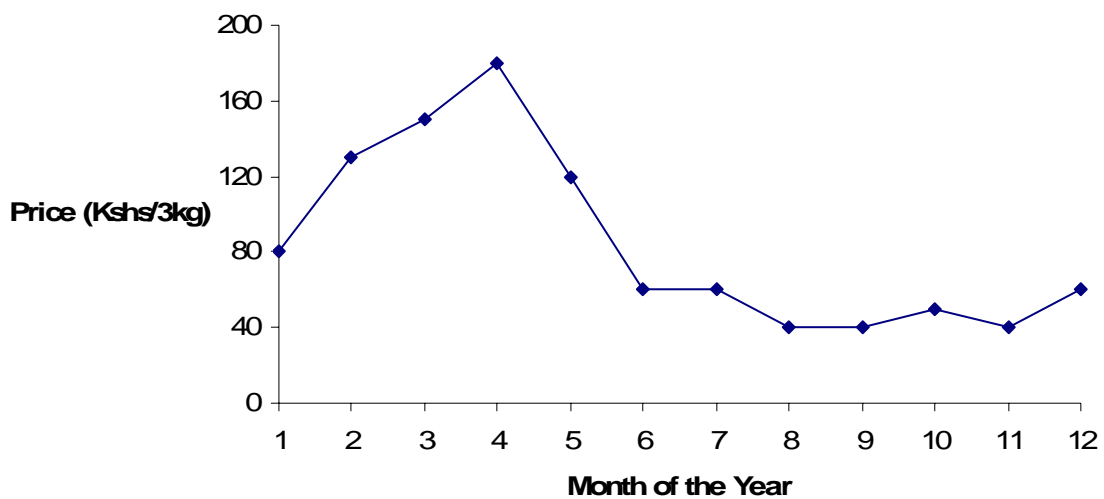
Kagio group family farmers grew green beans and some Asian vegetables (karella, dudhi, and gherkins) for export and maize, tomatoes and field beans for home consumption and domestic market. In October 1994, the farmers stopped growing Asian vegetables and concentrated on the production of green beans. Due to the advantage of having large volumes, the group was then able to attract more buyers but continued

⁴ Pseudonym used for anonymity

⁵ Henceforth called Kagio group

selling to any exporter or broker who offered the highest price through spot market operations. Nonetheless, the price in the group received fluctuated depending on the season (Figure 1). Prices received by the group tended to highest between January and April due to dry season and lowest between August and December.

Figure 1: Trends in producer prices of green beans in the spot market, Kenya



In 1995 the group approached Exporter B, which used to buy beans from the group through spot market purchases, and sought to grow beans for it on contract. Exporter B agreed to the contract since it knew the group. It was also attracted by the fact that large volume of beans from Kagio group would help lower its costs of assembling beans and also smooth out fluctuations in volume of beans it bought from Kagio area. The latter was particularly important because of the high per unit transport and transaction costs of sending a truck with loaders to Kagio area from Nairobi to buy green from smallholder spot market sellers. Thus in October 1995, Exporter B and the Kagio group signed a contract. The contract was co-signed by HCDA as a witness. Under the

contract, Kagio group was to supply specified volume of exportable quality beans to the company while the company was to pay an agreed price of Kshs 35/kg. At the time of signing the first contract, quality of green beans was based purely on physical attributes (size, shape, and spotlessness).

Two years after the initial contract, Exporter B informed Kagio group that it intended to change the terms of the contract. Like Exporter A, Exporter B's buyers demanded compliance with DCFSS. Hence, on February 1997, Exporter B informed Kagio group that it was introducing new requirements and that their contract would be renewed only if the group met those requirements (i.e., DCFSS). Compliance with DCFSS implied that the group needed to establish quality management system that encompassed, as in the case of Kangundo family farmers, hygiene and pesticide use practices, and establishment of traceability system. Exporter B gave Kagio group a list of requirements (see Table 1) and handouts containing the new permitted pesticides. The pesticides usage requirements were on permitted dosage, harvesting interval and the growing stage of the beans at which the pesticide can be applied. Exporter B gave Kagio group six months to comply with the requirements. In mid June 1997 the group received a memo reminding them that August 1, 1997 was the deadline for meeting the DCFSS requirements.

The group responded to Exporter B's memo by stating that implementing the requirements was too costly and that complying with DCFSS was going to make green bean production unprofitable. The group asked Exporter B to:

- i) To assist them by meeting part of the costs of building the facilities needed to meet the DCFSS (the grading shed, charcoal cooler and toilet).

- ii) Increase the price of beans to Ksh 45/kg from the contract price of Ksh 35/kg.
- iii) Extend the deadline for complying with DCFSS, citing the high costs of meeting long term facilities such as grading shed, toilet, pesticide storage unit.

In response to the group's letter, Exporter B convened a meeting with the group in which it reiterated the need for the group to meet the standards for continued business. It rejected the group's complaints about the high costs (and the losses) of making the changes and asked it to seek financial support from the government or local non-governmental organizations. This meeting between Exporter B and Kagio group marked the beginning of a stormy relationship between them. Exporter B threatened to stop collecting beans from the group unless the whole group complied with DCFSS while the farmers accused it of being insensitive to their plight.

Following the meeting, farmers lodged a formal complaint with the local government agricultural office and HCDA asking them to support their bid to have Exporter B share in the costs of being DCFSS compliant. Attempts by HCDA, as co-signer of the earlier contracts, to arbitrate the dispute failed. Exporter B was determined not to get involved in financing the group's compliance with DCFSS. Its reluctance to invest in the group's compliance with DCFSS was partly because of the risks of losing such investment when the group terminated the contract or started cheating on the contract by sideselling beans to competitors. Exporter B's attitude is captured by this statement made by its field production manager during an interview:

“It was the responsibility of the group to build those facilities. We could not give them any money because of the risks involved in working with smallholders. In

any case, we are not a charitable organization; we are in this business to make money not dish it out”.

At the end of the six months deadline the Kagio group convened a meeting with Exporter B, the area extension officer and a representative of HCDA. The group accused Exporter B of being unsupportive and ignorant about the hardships the DCFSS requirements subjected the farmers. It threatened Exporter B with boycott of green bean picking unless the latter assisted them financially or raised the price. The meeting ended without any agreement. Exporter B walked out of the meeting, and in line with its threat, stopped the collection of green beans from the group.

After Exporter B stopped buying green beans from the group, some members quit the group but some continued growing beans for spot market. However, due to the instability of the price in the spot market and opportunistic behavior by some spot market buyers, Kagio group members decided that each farmer markets his/her beans individually. The group dissolved one month later (in September 1997). Most of its members continued growing beans for sell in the spot market⁶ but a few joined other green bean marketing groups. However the groups they joined did not have reliable buyers. In deed, there were many family farmers and farmer groups in Kagio area that wished to have marketing contract with firms like Exporters A and B because they were considered reliable. The high demand for contracts explains why Exporter B remained steadfast in its demand for compliance with DCFSS even when it risked losing clients due to disruption of its supplies.

⁶ Green beans sold in the spot market are not subject to DCFSS because they are marketed into UK wholesale markets or in continental Europe where DCFSS are not required for commercial purposes nor (in the case of continental Europe) legally mandated (Jaffee, 2003).

4.3 Karie smallholder family farmers comply with DCFSS by resorting to collective action

Karie (in Mwea Division) has been the hub of green bean trade in Kenya for over three decades. Two factors have contributed to this, namely the good soils and access to irrigation water through government constructed irrigation canals. The area attracts the largest number of green bean spot market buyers. Up to 15 green bean exporters (and their agents) visit Karie on harvesting days, and many more during the months of January to March when drought in the area increases competition for green beans by exporters desperate to fill their orders.

Until 1996, Karie smallholder family farmers produced green beans mostly for the spot market and some Asian vegetables (e.g. karella and gherkins) which were sold to one of the leading exporters. However, they faced perennial marketing hardships due to opportunistic behavior of the spot market buyers (i.e., the brokers) just like the Kagio farmers.

In May 1998, ten Karie green bean family farmers met to seek a solution to these marketing problems. The farmers decided to form a farmer's marketing group and seek a marketing contract with one of leading green bean buyers. This initial group of farmers agreed to recruit more members to make a group of about 30 family farmers. New members had to undergo pre-screening for good behavior⁷ and also pay commitment (membership) fee of Kshs 2,000. Six months later, the farmers registered themselves as

⁷ Farmers were concerned about members who politicize issues and bring disharmony while doing little in the interest of the group.

Bidii⁸ Green Bean Self Help Group⁹. The group initially had 27 members, but has since grown to 35 members.

Following the registration, Bidii asked Horticultural Crop Development Authority (HCDA) for assistance in getting a buyer that can offer them a marketing contract and hence resolve their marketing problems. HCDA informed the farmers that the reliable buyers have become increasingly discerning about pesticide usage and hygiene practices farmers use and advised them to implement some of the practices related to DCFSS in order to attract good buyers. The farmers took advice seriously, and in January 1999 Bidii constructed a grading shed with washable tables, and an office and crate store as well as a pit latrine and a facility for washing hands. The farmers raised the money needed to build the grading shed from the membership fee and deductions of Kshs 2/kg from member sales of green beans. The Ksh 2/kg deductions were for running the group. Whatever was not used for that purpose was saved by the group in its savings account in a local bank. Later that year, Bidii got a marketing contract from Exporter B. However, unlike Kagio farmers' first contract, their contract required them to fully comply with DCFSS. Exporter B handed the Bidii farmers a list of hygiene and pesticide use, storage and disposal practices that the group needed to comply with and gave four months to comply with all the DCFSS requirements.

As in the case of grading shed, the group used deductions from members' sales and members' contributions to make the changes required by DCFSS. The group upgraded the grading shed by cementing the floor and built bathing room close to the grading shed. All the facilities were jointly owned by members. Since members had small

⁸ Pseudonym used for anonymity.

⁹ Henceforth referred to as Bidii

farm units located next to homesteads, the exporter allowed group members to use family toilet rather than have a separate one on the farms and also the family toilet for disposal of pesticides/pesticide containers thus eliminating the need to have a pesticide disposal pit in the farm.

Although not required by Exporter B, Bidii also invested in a mini pesticide store for use by members only. The store allowed members to take pesticide as needed thus eliminating the need to have pesticide storage units in their farms. The store operator recorded the type and quantity of pesticide taken by the farmer and transferred these records into the farmer's records in the grading shed as part of compliance with traceability requirements.

In order to help its members transition to new safer pesticides and to observe the pre-harvest intervals and hygiene in the grading shed, Bidii hired a field technical assistant¹⁰ (FTA) with training on agronomy and entomology and also a clerk. The latter carried out pest scouting for members and advised members on appropriate remedies for any pest and disease problems members encountered. In addition, the FTA (who ran the pesticide store) kept records of each member's production, pesticide usage, and post-harvest hygiene practices at the group thus eliminating the need for members to keep their own records. These records were available to the buyer as part of the traceability requirements.

By the end of the four months deadline for complying with DCFSS, Bidii group members had met all the requirements except a charcoal cooler, which was under construction. Exporter B was satisfied with the progress made by the group and allowed it more time to complete the construction of the charcoal cooler. In deed, Exporter B uses

¹⁰ The FTA was hired following the advice by Exporter B.

Bidii as its model group and has since 2000 started five other smallholder family farmer groups using Bidii as the model. The willingness of the Bidii members to pro-actively and reactively comply with DCFSS has benefited the group. It boosted Exporter B's trust for the group. Exporter B expressed the desire to maintain the good existing relationship with the group. Its production manager said during the interview:

“Bidii is a very pragmatic and flexible group. We can get it to carry out any changes we ask them to make. That is the kind of client we want to work with. Our buyers in Europe expect us to make changes *when* they want them and we expect our suppliers to do the same. So we intend to maintain our good working relationship with Bidii”.

Exporter B has, in turn, benefited from this in two ways. First, the trust reduced incidences of sideselling of beans to rival companies and/or brokers by its suppliers making it possible for Exporter B to always meet its orders. Second, Exporter B suppliers are willing to make any food safety changes that it asks them to. The Chairman of Bidii thus said:

“...we do anything that Exporter B tells us to do for the sake of keeping the European market and our relationship. For instance when it asked us to build a charcoal cooler, we did so without complaining. We would like our good relationship to continue that way”

4.4 Trust and compliance with DCFSS: Exporter B replicates Bidii model

The need to assure the UK consumers of the safety of Kenyan green beans has led to the need to closely coordinate the green beans supply chain (Dolan and Humphrey, 1999 & 2000; Singh, 2002). As part of this coordination process, Kenyan green bean family farmers are closely monitored by the green bean buyers. The decision by green buyers to closely monitor their suppliers arises from the shift in the way quality is defined, i.e., from physical to *credence* attributes. This shift in the way quality is defined has created a chance for farmers to behave opportunistically. Hence, monitoring alone is not sufficient to enforce compliance because perfect monitoring is unachievable (North, 1990).

Due to the problem of imperfect monitoring, Exporter B has chosen to replicate Bidii model by cultivating good relationships with its suppliers. At one point a dispute arose between Exporter B and Bidii over the criteria used to reject beans. Exporter B initially had its own grader posted at its farmer's/group's grading sheds to oversee the grading process. The grader would help farmers grade beans in order to reduce the volume of poor quality (injured, spotty, curved and overgrown) beans being trucked to its packhouse. There, however, was a second grading of the beans at Exporter B's packhouse. A dispute arose over the reason why beans graded in the presence of a company grader were being rejected by the company. In response, Exporter B withdrew its graders and started returning the rejects to the group with a note explaining the reason for rejection. This action satisfied Bidii group and ended the dispute.

Secondly, Exporter B has been careful to renew the contract with the group every year. Bidii treats the marketing contract with Exporter B as a show of commitment by the latter and hence a safeguard for the specific investments they have to satisfy DCFSS

requirements. In deed most green bean family farmers are reluctant to invest in the DCFSS requirements without first obtaining a formal contract from the buyer.

The good relationship between Exporter B and Bidii has taken a combination of toughness and fairness on the part of Exporter B. Exporter B has been consistent in its dealing with Bidii. It punishes violation of DCFSS requirements by suspension of bean collection until the violator reforms and puts the violator on “watch list” for a while even after the reformation. In addition, the group is aware that Exporter B can terminate the relationship anytime should it ignore warnings against violation of DCFSS requirements and the other terms of the contract. However, Exporter B investigates every case of violation prior to punishment and pardons unintended mistakes.

5.0 Summary and Conclusions

This study has used Hirschman’s concept of *exit*, *voice* and *loyalty* (i.e., compliance) to analyze the response of developing country family farmers to developed country food safety standards (DCFSS). It finds that different Kenyan green bean family farmers adopted different strategies in their response to DCFSS. The overwhelming response, as demonstrated by the Kangundo farmers, was to exit green bean growing and shift to production of vegetables for domestic market. Exit resulted in reduction and more uncertain farm income for such farmers due to low and volatile prices of domestically marketed vegetables.

The second strategy adopted by Kenyan green bean family farmers as demonstrated by the case of Kagio group was *voice*. The farmers in this case attempted to influence DCFSS through negotiations, complaints, lobbying, pleas for financial support

and threat of withholding sale by boycotting green bean picking. This strategy failed as the exporter expected either compliance or no business and moved to other areas when farmers failed to comply with DCFSS in one area. The success of voice is possible only when there are limited alternative sources of produce or a high degree of loyalty on the part of the exporter to a group. Hence the existence of large pool of green bean family farmers and farmer groups looking for buyers made it hard for farmers to influence DCFSS through the voice.

Lastly, some family farmers opted to comply with the standards (*loyalty* option). Such farmers resorted to using collective action to invest in facilities needed to meet DCFSS requirements. The farmers formed a farmer's group that provided the joint facilities as well as technical advice on pesticide use hygiene practices and traceability through group hired field technical assistant and clerk. Such collective action enables the farmers to attain economies of scale and remain competitive (Okello, 2005).

This paper demonstrates that family farmers can both proactively and reactively comply with the developed country food safety standards through collective action. By coming together to form a marketing association, the farmers were able to pool resources (capital) which they then used to jointly invest in fixed (hence costly) facilities needed to comply with DCFSS. In addition, the farmer association enables farmers attain large volumes thus benefiting from economies of scale which enables them remain competitive. Hence by resolving the idiosyncratic market failures on members and taking advantage of economies of scale, the marketing group (association) enables smallholder family farmers remain plugged into the lucrative high end export market. The paper also illustrates that attempts by family farms to influence DCFSS are likely to fail because the

exporters are themselves usually expected to comply with these standards by their developed country buyers.

The paper further shows that the success of any producer group is dependent on the way farmers are organized. The Kagio group had limited requirements (the physical quality attributes) to fulfill before being contracted as suppliers hence was not concerned about commitment among members. Consequently when market conditions changed (through introduction of DCFSS), free riding problem emerged as manifested by voice and exit with little internal adjustment. Bidii farmers, on the other hand, had barriers to entry in the form of pre-screening process and payment a commitment fee. This allowed some form of self selection whereby only the most committed producers joined the group. Hence Bidii farmers were able to adjust to changed market conditions arising from DCFSS requirements due to high level of commitment by members.

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