AJFAND ONLINE
Volume 11 No. 1
February 2011
ISSN 1684 5374
Peer Reviewed
AFRICAN JOURNAL OF FOOD AGRICULTURE NUTRITION AND DEVELOPMENT

EXIT, VOICE AND LOYALTY IN KENYA'S FRENCH BEAN INDUSTRY: WHAT LESSONS CAN WE LEARN FROM SMALLHOLDER FARMERS' PAST RESPONSE TO INTERNATIONAL FOOD SAFETY STANDARDS?

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[1] The author gratefully acknowledges funding for this research from Rockefeller Foundation, World Bank and Michigan State University's Department of Agricultural Economics, Elton Smith Endowment and the Graduate School.

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ABSTRACT

Kenya is one of the leading exporters of fresh vegetables to Europe. Kenyan exporters have since the 1990s targeted the leading European supermarkets with their produce. However, the food safety scandals of the 1980s and 1990s led these supermarkets to adopt stringent food safety protocols relating to pesticide use, hygiene, and traceability. These standards were then passed on to Kenyan exporters. In turn, many leading fresh export companies in Kenya developed their own stringent private protocols relating to food safety standards. Others adopted the European Retail Group's Good Agricultural Practices or their European buyers' private food safety standards. In both cases, Kenyan exporters required full compliance with the food safety standards in order to continue buying beans from their suppliers. This study examined how Kenyan smallholder growers responded to the standards and how their response affected their continued participation in the supermarket business. It applies Hirschman's concept of *exit, voice* and *loyalty* to assess the strategies used by Kenyan smallholder French bean farmers in response to international food safety standards (IFSS). It then assesses the factors that influence the success or failure of such strategies. Data obtained in this study suggest that smallholder farmers used different strategies to respond to IFSS. The initial overwhelming response was to exit production. Other farmers resorted to voice strategy: complaints, petitions, threats, lobbying, in attempt to influence buyers/exporters to relax or change the standards. Such farmers largely failed. The rest of the farmers, however, proactively complied with the standards by using collective action and were able to stay in the fresh export business. This strategy of compliance with IFSS has since become the model in smallholder export horticulture in Kenya. This study, therefore, demonstrates role that collective action and proactive response to standards can play in maintaining their participation of smallholder in fresh vegetable export business and suggests the need for assisting the poor smallholder farmers to keep their share of market.

Key words: Food standards, compliance, smallholders, Kenya

INTRODUCTION

Developed countries have expanded their sourcing of fresh vegetables from third world countries in the last one decade to satisfy growing demand for these products that is in turn driven by consumer incomes, urbanization and changing lifestyles [1, 2]. In return, many developing countries have diversified their exports into non-traditional fresh exports. However, the tropical climate in the latter make it imperative for developing country farmers to rely increasingly on use of pesticides to meet the aesthetic attributes required by developed-country consumers. Consequently, heavy use of pesticides has been reported in many developing countries leading to concerns over medical health effects of pesticide residues on consumers and farm workers [3]. For instance, a survey conducted by American Farm Bureau Federation in 1990 found that 55% of American adults indicated that they were concerned about the pesticides used in growing crops. In addition, the food safety scares of the 1980s and 1990s (relating to salmonella poisoning, mad cow disease) and increased use of growth hormones and antibiotics in developed countries led consumers to be concerned about the safety of vegetables they eat.

To reduce the recurrence of food safety failures and allay consumer fears over the safety of the food, developed country governments have enacted stringent legislations relating to pesticide residue limits and packer hygiene [4]. Some have transferred the responsibility for food safety assurance from the state authorities to private retailers. The United Kingdom (UK) has, for instance, through its due diligence law made retailers responsible for food safety assurance [5]. Major retailers in such countries have responded to these regulations by developing their own food safety protocols that 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 requirements, developing country exporters subject their suppliers to close monitoring.

For some developing country growers, meeting these international food safety standards (IFSS) has been a prerequisite for staying in the export business, but at the same time a major challenge. Meeting the standards implies i) switching to new safer but more costly pesticides, ii) investing in costly storage, packing and cooling facilities and iii) keeping detailed technical information related to pesticide usage and produce handling practices both in the farm and in the grading and holding facilities. These requirements are capital intensive and require access to own or debt capital [6]. Yet developing country smallholder farmers face endemic problems of poor access to capital [7].

Many developing country governments became concerned that the high costs of implementing the IFSS would exclude fresh export vegetable farmers from participating in high value export markets [8]. Indeed, evidence suggested that some fresh export vegetable farmers were being marginalized by IFSS [6, 9, 10, 11]. These early studies found that IFSS particularly disadvantaged the smallholder farmers. Other subsequent studies however found that IFSS improved the participation of

smallholder farmers in the high value export markets. This study assesses how Kenyan smallholder farmers responded to the enforcement of compliance with IFSS by a leading exporter of fresh vegetables in Kenya. It analyses i) the strategies that developing country smallholders used in response to enforcement of IFSS by leading exporters, and ii) what determined the success or failure of such strategies.

The study is on Kenyan smallholder farmers growing French beans for export to the UK supermarkets. Kenya is one of the leading exporters of fresh vegetables to the UK. The French bean industry dates back to the 1950s and has been dominated by smallholder farmers [12]. The UK supermarkets have, on the other hand, stringent private food safety standards that all suppliers are required to comply with hence make a good case to study. Such standards include Mark and Spencer's "Farm to Folk and Tesco's "Nature's Choice".

Conceptual framework for analyzing strategic response to food standards in Kenya

This study uses the concept of *exit*, *voice* and *loyalty* (or *compliance*) developed by Hirschman [13] for manufacturing industry and applied to agriculture [1, 5, 14]. Hirschman used this concept in the context of customer response to the deterioration of quality of products or services an industrial firm provides. However, this concept has since been used to analyze country-level response to IFFS [5]. In this study, we extend the analysis to the farm level.

It is assumed that the performance of a firm such as a fresh vegetable exporter is perceived by farmers to be deteriorating when it departs from the pre-agreed socially responsible position/arrangement of providing export services that integrate them into the high value chain. According to Hirschman, farmers can respond to such changes by using one of the three strategies namely *exit*, *voice* and *loyalty*. The *exit* strategy occurs when farmers stop supplying an exporter because they are dissatisfied with the quality of his service. In the context of IFSS, quality of service might change when exporters demands regarding production and post-harvest handling requirements change so that it becomes hard for some farmers to comply. The farmers, due to dissatisfaction, can switch to another exporter to signal to the exporter the deterioration in the quality of its service. The switch could be permanent or temporary, with normalcy returning once the exporter restores the quality of its service. Exit can also take the form of abandonment of production of fresh export vegetables. In this case, the farmers communicate their displeasure by withdrawing their land, or labor or both land and labor from production and hence reducing the volume of supply of fresh export vegetable to the exporter or cutting of the supply altogether.

The second strategy that farmers can use in response to changes in the quality of services from the exporter is the verbal expression of their dissatisfaction with the quality of exporter's service. This strategy is called *voice*. Under this strategy, farmers can complain, protest, hold demonstrations, riot or threaten the exporter with boycott

as a way of communicating or expressing dissatisfaction with quality of service. The protests and complaints can be verbal or written. They can also lobby the relevant authorities to petition the exporter to address their concerns. Hence *voice* is also intended to call the exporter's attention to his failures with a hope of bringing about change. *Voice* is sometimes the residual of *exit* strategy. Farmers who are unable to *exit* production altogether but face monopolistic competition resort to *voice* to awaken the exporter to his failures. *Voice* can also be an alternative to *exit*, if farmers postpone exit with the expectation that it will draw the attention of the exporter to their problems.

Hirschman argues that two factors determine whether farmers use *exit* or *voice* namely, re-entry cost and transaction costs. Farmers that face high re-entry costs will likely choose voice rather than exit. Voice is a dominant strategy where farmers have invested in specific assets (especially skills and physical facilities) and are, therefore, locked into the production of export crops.

Lastly, farmers can choose to stay on hoping that the situation will improve, a strategy referred to as *loyalty*. Farmers, in this case, adapt to the changed conditions hoping that the problem is transitory and normalcy will return. Farmers can, in this situation, adapt to the changes in quality of services provided by the exporter either *proactively* or *reactively*. In the former, farmers anticipate the changes in the exporter's services and adjust the practices, hence, becoming unaffected when the changes finally come. In the *reactive* adaptation strategy, farmers respond to changes as they come. In the context of horticulture exports, *loyalty* is reinforced by the high costs of finding an alternative buyer and stiff penalties for exit (such as contract suspension or termination). The penalties for exit can lead to loss of reputation and/or livelihood.

Data and empirical methods

The data were collected through personal interviews with smallholder farmers producing French beans for export to the UK conducted in January and February 2006. Data from individual farmer interviews were supplemented by interviews with key informants including existing French bean producer and marketing groups, French 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, major French bean canners, and some non-governmental organizations involved in the provision of technical support and services to French bean farmers and farmer groups. In addition, we interviewed leaders of farmer groups that had quit production of French beans or switched from growing beans for fresh export markets to supplying canning industry. Focus group discussions were held with farmers who were still supplying supermarkets, those who had switched to canning industry and those who had quit French bean production altogether. Information from these interviews was supplemented with secondary information from government and industry statistical reports, industry newsletters, and international and local newspaper reports.

Exit, voice and loyalty in Kenya's smallholder French bean farms

Prior to the IFSS era, the quality requirements for French bean exporters were limited to physical attributes (namely, size, shape, and spotlessness) and the consistency and reliability of supply. Exporters generally did not worry about produce contamination with pesticides or pathogens. Beans destined to the UK were, therefore, often sorted and packed under poor hygiene conditions, usually on the ground under a tree shade or makeshift structures [6, 14]. Farmers applied pesticides indiscriminately in controlling diseases and pests [6]. At the same time contracts between farmers and buyers were loose and almost exclusively verbal in nature [6, 15]. The contracts specified the quantity to be produced, the timing of delivery, the physical quality specifications and the price.

Major changes in production and marketing of beans occurred with the arrival of the IFSS. Leading exporters developed their food safety protocols relating to pesticide residue limits, hygiene, and traceability [16, 17]. Table1 lists these requirements. The requirements were enforced through close monitoring under contract [5]. Majority of the smallholder farmers producing for UK supermarkets found these requirements costly and some opted to quit producing beans while others stayed. Overall, majority of the farmers particularly found the individual construction of grading sheds, charcoal coolers, and pesticide storage units, toilets, and switching to new approved pesticides expensive.

Three reasons explain the difficulties smallholder farmers faced in meeting the IFSS. First, most smallholder farmers do not have access to debt and equity capital [7, 18]. Consequently, majority did have the cash to implement the standards. Second, some farmers were not sure of continued market access after implementing the standards and were, therefore, afraid of losing their investments if the buyers were to quit after having constructed the facilities needed to comply with the standards [15]. Third, the farmers were afraid of losing their investments due to marketing risks (especially uncertain demand and hence price). The fear of losing investments on facilities needed to comply with IFSS by French bean growers is captured by one farmer who said:

> **"I could never sell my cow to build the structures the exporter is asking for. It is very hard to recover your cow if you sell it to invest in those things. The risks are just too high. One is never sure of the price of beans, and the buyer could lower the volume purchased from me anytime forcing you to dump the remaining beans away. The French bean market is hard to predict"**

The asset specificity of IFSS investments coupled with risks and lack of investment capital, therefore, led many smallholders to reassess their continued participation in the export market. Majority of smallholders switched to less demanding exporters through intermediaries (also known as "brokers") usually at a lower price. Others quit French bean production altogether and went into domestic vegetable production

(especially kales, tomatoes, and onions). Hence smallholder farmers that could not meet the cost of IFSS investments responded to introduction of these standards by partially or fully exiting production.

The use of exit strategy by Kangundo smallholder farmers

The *exit* strategy is best illustrated by Kangundo smallholder farmers. Kangundo district was one of the major French bean sourcing areas for leading exporters of beans in the 1980s and early 1990s. It had the advantage of being close to Nairobi (75 km), hence served as a source of low cost beans compared to the other major growing areas like Mwea (140 km) and Mitunguu (over 200 km). The closeness of Kangundo also made it easier for buyers to monitor production practices and hence control quality and volumes.

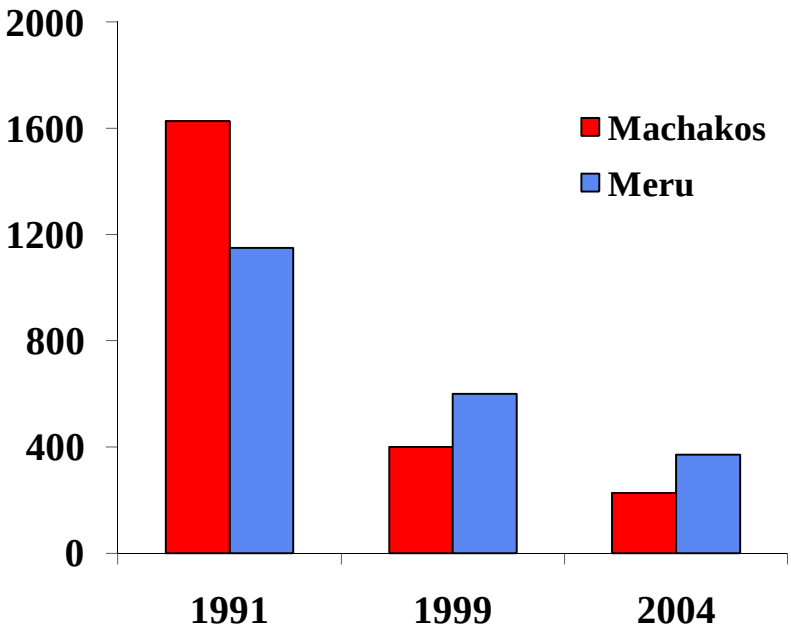
Kangundo smallholder farmers started growing French beans in 1991, with only one leading exporter buying beans from the farmers. Most farmers were initially organized into loose French bean marketing groups comprising as many as 120 members. A few, mainly larger farmers, operated independently. Approximately 1600 smallholder farmers were growing beans in the district in 1997.

In 1998 the sole exporter introduced production practices based on IFSS and demanded full compliance with the new codes of practices within six months. However, certain requirements (such as the switch to safer pesticides, pest scouting before use of pesticides and use of protective clothing) took effect immediately. The exporter also demanded that larger groups re-organize themselves such that group membership was limited to 15-20 members. The reduction of group sizes was mainly intended to facilitate closer monitoring.

Most smallholder farmers were unable to invest in the facilities needed to meet the IFSS requirements and abandoned production of beans altogether. On average, about 90% of the exiting farmers went into production of tomatoes and kales for domestic markets. All the farmers that continued growing beans stopped supplying the demanding exporter and started selling their beans to a domestic French bean canning company whose demands were much less stringent. Unlike the fresh exporter, the canner only required that the pesticide applicators wear protective gear and that the pesticide used be those authorized for use in beans. Hence by 2001, no smallholder farmer was growing French beans for fresh export in Kangundo district.

Majority of smallholder farmers supplying other leading French bean exporters in other areas also used the *exit* strategy to respond to IFSS. Figure 1 presents the changes in the number of smallholder farmers growing beans for one of the leading exporter in Machakos and Meru districts. As shown, the number of French bean growers dropped significantly between 1991 and 2004.

Figure 1: Trends in the number of smallholders supplying a leading French Bean Kenyan exporter, 1991, 1999, and 2004



Source: Author's survey, 2005.

The use of voice strategy by smallholder farmers and its outcomes

Figure 1 shows that although there was massive drop in the number of French bean growers, some farmers chose to continue supplying leading exporters and hence stayed in the UK supermarket supply chain. These farmers can be divided into two categories. The first category included farmers who invested in some of the mandatory requirements but found full compliance too expensive. They got again locked in the French bean business by the specific investments they had already made. This was especially the case for those who had invested in facilities like grading sheds, pesticide storage units and charcoal coolers. Consequently *exit* became a more costly strategy than alternative strategies. Such farmers resorted to the use *voice* to get the exporter to modify the IFSS standards.

Another factor that motivated the remaining farmers to resort to *voice* was the lack of reliable alternative buyers. Farmers did not trust alternative buyers of French beans (namely the "brokers") because they often failed to collect beans when ready or to remit payments after collecting beans [6]. Uncertainty in the alternative marketing arrangement involving brokers, therefore, led these farmers to prefer the option of persuading their buyers to relax the standards.

The second category of smallholder farmers that resorted to *voice* did not attempt to invest in facilities required to comply with IFSS at all. Instead, they chose to use *voice* immediately they faced the standards. This second group of farmers opted for *voice* strategy upon realizing that they had limited options of switching to other exporters and also that the spot market (involving brokers) was too uncertain.

The best example of farmers that used *voice* strategy was those belonging to Baricho Farmers Self Help Group located in Kirinyaga district. These farmers supplied a buyer who initially exported his beans to wholesale market. However, in 2000 the exporter switched to supplying a leading UK supermarket. Consequently, it started enforcing IFSS. It gave its suppliers 3 months to implement all the good agricultural practices encompassed in the IFSS. The overwhelming response by the farmers was resistance and the use of different forms of *voice*. First, the group sent memos to the exporter complaining that implementing the requirements was too costly and would erode all their profits. Interestingly, while the exporter expected farmers to implement the standards, it refused to increase buying price instead keeping it at Kenya Shillings 40/kg. The memos implored the exporter to: i) share the costs of building the facilities (grading shed, charcoal cooler and toilet), ii) increase the price of beans, iii) allow the farmers to substitute family facilities (especially toilets, shower rooms, and waste disposal pits) for those required under IFSS, and iv) extend the deadline for complying with IFSS.

Second, the farmer group petitioned Horticultural Crops Development Authority (HCDA) to intervene by asking exporters to relax the standards. The Authority is the industry regulator and a third party signatory of contracts between exporters and farmers and/or farmer groups. Later, the farmer group petitioned the government, through local agricultural offices, for help. These strategies resulted in meetings convened by the Authority and/or divisional agricultural officers between farmers and their exporters, but often failed to persuade the exporters to change their requirements.

When the group-based *voice* strategies failed to bear fruit, it resorted to collective *voice* strategy. It teamed up with other farmer groups in the district to form a French Bean Farmers Union comprising all farmer groups in the larger Mount Kenya region. The union threatened exporters buying from its members with a strike/boycott unless they relaxed their demands on strict compliance with IFSS or cost-shared in their implementation. This strategy failed for two reasons. First, the exporters threatened to stop buying from farmers or groups that incited others against compliance with IFSS. Second, exporters maintained that the risks of losing investment due to side-selling of contracted beans or unfair contract termination prevented them from cost-sharing in the group investment in IFSS compliance. The production manager of a leading exporter alluded to this risk by saying:

> **"It is the responsibility of the farmers to build the facilities. We can't give them any money because we won't be able stop them from selling our beans elsewhere. We are not a charitable**

organization; we are in this business to make money not dish it out".

The unrelenting pressure on exporters to relax their position on full compliance with standards was later taken up by the Kenyan press and political leaders [8]. Both the press and political leaders portrayed IFSS as a major threat to the future of French bean industry and to the livelihoods of many smallholder farmers that depended on French beans for income/employment. Due to the unrelenting *voice,* Baricho Farmers Self Help Group's buyer permitted its farmers to use some of the family facilities to meet the standards. In particular, the group members were no longer required to build a separate toilet in the farm or a pesticide storage unit. Instead, they were permitted to use family toilet and also dispose of pesticides in family toilets. Farmers and farmer-workers were also allowed to use family bathroom for showering rather than build a separate one in the French bean field. In addition, farmers could also burn or bury pesticide containers rather than build an incinerator.

Attempts by farmers to force exporters to relax or alter the other requirements, however, failed. For the exporters, changing or relaxing the standards was not an option because they were only responding to the UK market where they too were standards-takers. Farmers that were unable to comply were suspended and/or expelled. To make up for the lost volumes, such exporters contracted larger growers. Others moved out and set up outgrower schemes in other areas where they started with farmers that understood the requirements and were willing and able to comply. The use of *voice,* therefore, failed in all cases except allowing farmers to substitute family toilets and bathrooms for those required under IFSS. Ultimately, Baricho Farmers Self Help Group dissolved. Most of its members (80%) abandoned growing beans and shifted to producing vegetables (especially tomatoes) for domestic market while the remaining 20% shifted to supplying brokers or domestic canning industry.

Loyalty through collective action

While a number of smallholder farmers resorted to *exit* or *voice*, some chose to comply with the standards and remain in high-value supermarket business. The farmers that used this strategy mainly belonged to farmer groups [6, 15]. Through the groups, they jointly invested in the facilities and human capital they needed to comply. The groups constructed grading sheds, charcoal coolers, toilets, potable and pesticide stores for use by all members (hence eliminating the need for each member to build pesticide storage units and disposal pits in their plots). The groups also hired a technical assistant that assisted members in implementing the standards and then monitored compliance with pesticide usage, storage, and disposal requirements and a grading clerk to manage hygiene in the grading facility.

The choice of *loyalty* in response to standards was partially driven by the lack of reliable alternative buyers. Members of farmer groups that used this strategy collectively sold larger volumes of beans per harvest than individual farmers. They could not, therefore, depend on the unreliable spot market buyers (the brokers). Other

farmers chose *loyalty* because they got locked in French bean production by the specific investments they had made prior to the enforcement of standards. This was especially the case with farmers that invested in grading sheds and pesticides storage units in order to get contract from a leading exporter. The case of proactive loyalty below of Karie Farmers' Self Help Group (hereafter called Karie group).

Pro-active compliance by Karie farmer group: An example of loyalty

Karie group was formed by 33 smallholder farmers in 1998. The group started out by selling their beans to "brokers" but ultimately wanted to secure a contract with a more reliable buyer that supplied UK supermarkets. By the time of its formation such buyers had started demanding strict compliance with IFSS. Indeed the first buyer it approached asked if the group used good agricultural practices (or complied with IFSS), in general, in producing beans. The group, therefore, chose to construct a grading shed with charcoal cooler, washable tables, crate store and an office. They also built a toilet at the collection point and employed a technical assistant that advised farmers on pesticide use, storage and disposal. The technical assistant also maintained individual farmer's pesticide usage and planting records for traceability purposes. The group further employed a grading clerk who enforced hygiene standards in the grading shed and maintained production and sales records. The group raised the money needed to build the facilities and employ the staff from the membership fee and members' contribution of Kshs 2/kg beans sold through the group.

By the time the group re-sought a contract with one of the leading exporter, they had already invested in most of the basic infrastructure the exporter needed. The exporter gave it six months to comply with the remaining requirements, which the group did. The remaining requirements included cementing the floor of the grading shed, installing portable water and a facility for washing hands, and constructing waste disposal pit. The group later constructed a group managed pesticide store. The store dispensed pesticides to group members as needed and also a team of pesticide sprayers to actually apply the pesticides to its members at a discounted fee. The sale of pesticides to members and application by group-employed applicators enabled Karie group to control pesticide dosage and the interval between application of pesticides and the harvesting of beans, thus enabling it to comply with residue limits imposed by French bean exporters.

These investments enabled Karie group to be in full compliance with the IFSS and endeared it to the exporter. The groups' willingness to invest in the standards without pressure from the exporters made it one of the exporters' most preferred groups and a model that the exporter later replicated in other areas.

What really made Karie group successfully pursue proactive *loyalty* while others chose *exit* or used *voice*? First, the group understood from the outset that entry into the supermarket value chain required compliance with IFSS. As a late entrant into the value chain already governed by stringent food safety standards, Karie group knew

that the only barrier to participation in such chain was meeting the standards. The group, therefore, used its collective strength to overcome the barrier to entry. Second, the group collectively raised the money it needed to put up the infrastructure and hire the human resources needed to meet the IFSS standards, thus reducing costs borne by each member. Third, the group trusted and also earned the trust of its exporter. The trust between the group and its exporter is captured by the exporter's production manager who said:

> **"Karie is a very pragmatic and flexible group. It does what we ask it to do. That is the kind of group 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".**

Karie's exporter has, in turn, benefited from this trust. First, the group did not side-sell the exporter's contracted beans to "brokers". Second, Karie was always willing to make any production, handling and compliance-facilities adjustments demanded by the exporter. Lastly, the exporter has a written contract (that is renewed every year) with the group. The group treats the contract as a commitment on the part of the exporter.

As a sign of the good will, the exporter assisted Karie group to prepare for and obtain the European retail produce group for Good Agricultural Practices (EurepGAP) certification. The exporter also returned all rejects to the group with a note explaining the cause for rejection, which has further built trust in their relationship.

Summary and Conclusions

This study applied Hirchman's concept of *exit, voice* and *loyalty* (compliance) to analyze the response of different smallholder French bean farmers in Kenya to the introduction of IFSS. The dominant response, as demonstrated by the Kangundo farmers, was to exit French bean production altogether and shift to production of vegetables for domestic market or to partially exit by supplying less demanding exporters.

Some smallholder farmers, exemplified by Baricho Self Help Group used *voice* to try and influence IFSS through petitions, negotiations, complaints, lobbying, pleas for financial support and threat of a strike (withholding sale by boycotting green bean picking). This strategy failed as the exporter expected either compliance or no business, and moved out of areas where farmers failed to comply. The fact that exporters were standards-takers in the UK market made it difficult for them to negotiate with farmers.

Lastly, some smallholder farmers opted to comply with the standards (*loyalty* option). Such farmers resorted to using collective action to invest in the facilities needed to meet IFSS. The farmers formed groups that enabled them to jointly invest in facilities as well as technical staff that oversaw compliance with pesticide use and hygiene practices.

The study demonstrates that smallholder farmers can maintain their participation in the fresh export market through proactive compliance with the standards (*loyalty*) combined with collective action. By coming together to form a group, the farmers can pool resources (capital) and jointly invest in costly facilities needed to comply with IFSS. Through groups, smallholder farmers attain large volumes, economies of scale and hence become competitive. Two, it demonstrates that trust between the exporter and buyer is important in smallholder farmers' proactive compliance with IFSS. Lastly, it illustrates that efforts to influence the standards through complaints and petitions are not effective in maintaining the participation of smallholder farmers in the high value export market. The implication of this finding is that it is useful to prepare farmers to comply proactively with future changes in the food safety standards rather than letting them resort to unsuccessful strategies such as *voice*. The findings also suggest the need for the public sector, private sector or both to assist poor farmers to meet the standards and hence stay in fresh export business. For many such farmers, fresh export vegetable production is a major source of livelihood hence their exclusion from the industry exacerbates rather than alleviates rural poverty.

Table 1: List of IFSS requirements farmers must to meet to be in compliance

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

Source: Authors' compilation, 2007.

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