

Structure and conduct of cross-border bean (*Phaseolus vulgaris*) marketing in east Africa: the case of western Kenya and eastern Uganda

L. W. MAUYO¹, D. K. KOSGEI¹, J. R. OKALEBO¹, R. A. KIRKBY², P. M. KIMANI³,

M. UGEN⁴ & H. K. MARITIM¹

¹Moi University, P.O.Box 1125, Eldorate, Kenya

²CIAT-AFRICA, P.O. Box 6247, Kampala, Uganda

³University of Nairobi/CIAT, P.O. Box 29053, Nairobi, Kenya

⁴Namulonge Agricultural and Animal Production Research Institute (NAARI),
P.O. Box 7084, Kampala, Uganda

Abstract This study was conducted to assess the current status of cross-border bean (*Phaseolus vulgaris*) marketing patterns in the border districts of Kenya and Uganda, with a view to improving the marketing system in the region. Common bean is the most important pulse in Kenya and Uganda. It is a major source of food and income. Smallholder farmers in both countries have adopted improved bean varieties. However, there is inadequate empirical evidence on the bean grain characteristics preferred by consumers, the geographical distribution of the bean cultivars and the marketing patterns. The objectives of this study were to identify and assess the bean marketing channels and structure in the study area. It was hypothesised that there are no barriers to entry in the bean business in the study area. Purposive, multistage and systematic random sampling methods were used to select the study districts, bean farmers and traders, respectively. Two hundred and ten respondents were interviewed using structured questionnaires. Structure-conduct-performance (S-C-P) model was used to describe the bean marketing system. The study revealed four marketing channels in both Kenya and Uganda. The degree of concentration at the retail and wholesale levels show that the markets are competitive. There are barriers to entry into the bean business in the study area. No collusive or predatory tactics were observed in the bean marketing system. However, the study revealed that there is poor market information flow in the marketing system.

Key words: Marketing patterns, channels, Structure-Conduct-Performance model, *Phaseolus*

Introduction

In Kenya, common bean is the most important pulse and second to maize as food crop (GOK, 1998). The national annual demand for common bean has been estimated at 500,000 metric tonnes, but the actual annual production is only about 125,000 metric tonnes (Muasya, 2001). The total area under bean cultivation in Kenya is estimated at 500,000 ha (GOK, 1998) leading to actual bean yield of 250 kg ha⁻¹ partly under mixed cropping. In pure stands, yields of 700 kg ha⁻¹ have been reported (Songa, *et al.*, 1995; Muasya, 2001). This yield is low compared to potential yield of up to 5000 kg ha⁻¹. Such high yields have been achieved in other countries, such as Mexico under field conditions (Muasya, 2001).

Bean consumption in Eastern and Southern Africa exceeds 50 Kg per person per year, reaching 66 Kg per person in parts of Kisii district of Kenya (Wortmann, 1998). Bean also contributes 30% of the dietary energy in the widespread maize-based cropping systems of mild-altitude areas of Eastern and Southern Africa (Wandel and Holmboe-Ottesen, 1992). Bean forms a good source of income for farm families. In Uganda, bean is a major source of food security, readily available and popular food to both the urban and rural population. In 1987, Food and Agriculture Organization (FAO) estimated Uganda's bean consumption as 29.3 kg per capita (Kirkby, 1987). However, recent studies show that the per capita consumption in Uganda's Nabongo area is 58 kg (David, 1999). Beans provide about 25% of the total calories and up to 45% of protein intake, of the diet of many Ugandans. The crop is also an important source of income

in Uganda due to the increasing demands both in the domestic and export markets (NARO, 2000).

It is known that smallholder farmers have adopted some of the released varieties from research institutions. There is inadequate empirical evidence on the bean grain characteristics preferred by consumers. There is also inadequate knowledge about the released cultivars among customers, their marketability and geographical distribution within the region. This study was, therefore, conducted to assess the current status of cross-border bean marketing patterns in the border districts of Kenya and Uganda, with a view to improving the marketing system in the region. The objectives of the study were to assess the current marketing channels and analyse the market structure in the study area. It was hypothesised that there are no barriers to entry in the bean trade in the study area.

Methodology

This study was conducted in Bungoma and Busia districts of western Kenya, and Mbale and Kapchorwa districts of eastern Uganda between March and June 2002. Primary and secondary data sources were utilised. The primary data were obtained in a survey from 104 bean farmers and 106 bean traders using structured questionnaires. Secondary data were obtained from the governments' publications such as Economic Surveys, Statistical Abstracts of Kenya and Uganda, as well as publications from private institutions. Purposive sampling was used to select the study districts. A multistage random sampling technique was used to select farmers for interviews, while systematic random sampling was used to select the traders.

The major wholesale and retail markets in the study areas were identified and selected. Retail traders and wholesalers were identified using the volume of beans they handle. In every market, the first respondent was picked arbitrarily and the next respondent was picked by skipping one. Descriptive statistics and analytical models were used to analyse the data using the Statistical Package for Social Scientists (SPSS) and Microsoft Excel computer programmes. The Concentration Ratios (CR) were calculated to determine the structure of the bean market. The marketing channels and the barriers to entry into bean marketing business were investigated and described.

Empirical Model. The mathematical function of the concentration model is as follows:

$$CR_m = \sum_{i=1}^n P_i$$

Where CR_m = concentration ratio of the largest m firms;

n = Number of traders;

P_i = the market share of the i^{th} trader ($i = 1, \dots, n$);

m = Number of the largest firms; and

Range of values is $m/n \leq CR \leq 1$.

$$m \leq n$$

The manner and mechanism by which producers and traders co-ordinate their actions was analysed for market conduct.

Results and discussion

Seller concentration. At the wholesale level, the bean market structure was moderately concentrated with competitive fringe in both Uganda and Kenya. The markets are, therefore, competitive as evidenced by the low concentration ratios (Table 1). At the retail level, the markets in both Uganda and Kenya are well dispersed with a number of traders controlling only a small amount of beans in each market. On the retail market, the structure for beans is low to moderate in concentration in both countries (Table 2). This implies that the retail market is competitive though not reflecting pure competition.

The dominant source of market information for all categories of respondents in the study area was other traders (Table 3).

Market transparency. This is the market information flow within the system which aids in decision-making mechanism at all channel stages (Bressler and King, 1970).

Market information in the bean marketing system in the study area was poor. Most producers were not aware of the prevailing market conditions and relied on traders and other farmers as a source of information at the time they sell their beans, thus making irrational decisions (Table 4).

Product differentiation. Not much of sales promotion was carried out apart from some sorting and grading. Traders used characteristics such as uniform colour of a particular bean variety, properly dried beans and absence of rotten or infection by pests to determine quality that they needed. High quality beans fetched higher price in both Uganda and Kenyan urban markets. However, in the rural markets, the price remained the same. At country level, the majority of retailers and wholesalers in Uganda sorted their beans. On the contrary, majority of these traders in Kenya did not sort/grade their beans (Table 5). Bean varieties in the study area are product differentiated, such that certain varieties are preferred according to the way they are sorted or graded. Traders indicated that most customers preferred varieties with uniform colour, clean and attractive, large or medium size and those that cook faster. Both wholesalers and retailers rejected a bean stock, which they considered to be of poor quality (infected with pests, rotten or not properly dried). The quality in this case was checked by visual inspection. For those bagged, a random check by sampling using a spike was done.

Barriers to entry in the bean trade

To enter the industry, the participant may have to raise substantial capital investments. However, less favoured

access to liquid funds for investments could be a major cause of entry barriers.

Starting Capital. The mean starting capital for the whole bean trader population was equivalent to Ksh 61,876.65 for Uganda with a coefficient of variation (CV) of 141.9 %. Similarly, the mean starting capital for the whole bean trader population in Kenya was Ksh. 46, 953.70 with a coefficient of variation (CV) of 288.2%. These results indicate that there are wide variations in the financial input requirements for the bean trade. There is wider variability in Kenyan markets than in Uganda as shown by higher coefficient of variation for Kenya.

Working capital. The amount of money with which bean traders were running their operations showed wide fluctuations when all the markets in both Uganda and Kenya were considered. While bean traders in Uganda markets were using Ksh 63,090 (US\$ 788.6) per month on average to run their operations, those in Kenyan markets required Ksh 48,404 (US\$ 605.1) per month to operate. However, Kenyan markets showed wider variations of working capital compared to Ugandan markets. This is an indication that capital requirement is a barrier to entry into the bean trade as evidenced by the high amounts of both the starting and working capital. This locked out many people that would have joined the trade. Lack of credit was another constraint facing them as most of them started their business using their own savings or lending from friends and relatives.

Managerial know-how. Primary level education was treated as sufficient to enable one carry out bean trading business. The majority of the traders (98.3% in Uganda and 95.7% in Kenya) had attained at least primary education (Table 6). These results indicated that formal education enhances the necessary skills required to carry out bean trade. Educational level is, therefore, not a barrier to bean trade in the study area.

Results further revealed that 60% of traders in Uganda had been in the bean business for between 1-5 years and their volume of business was 761 (100 kg) bags of beans accounting for 37.6% of the total volume traded. In Kenya, 39.1% had been in the business for 1-5 years, and had a volume of business of 152 (100kg) bags of beans accounting for 7.5% of the total volume traded. These results indicate a scenario where business experience is complemented by education level. This was particularly the case for Kenya where traders who had attained primary level education with business experience of 1-5 years had a lower volume of beans traded than those who had attained secondary level education with a business experience of 6-10 years. However, the case was different in Uganda where traders with primary level education with business experience of 1-5 years, 11-15 years and 16-30 years handled a larger volume of beans than those with secondary level education with the same business experience. Education level and business experience are necessary but may not on their own determine the success

of business. Other factors such as capital availability, market situation and business acumen come into play. However education level and business experience were not found to be barriers to entry in bean business in the study area.

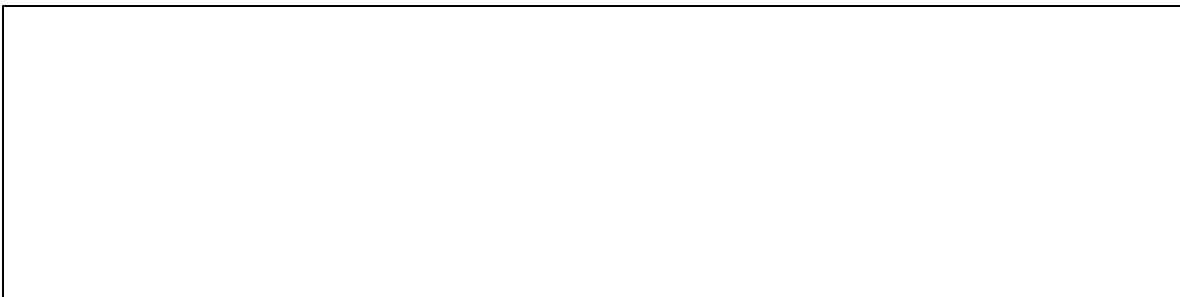
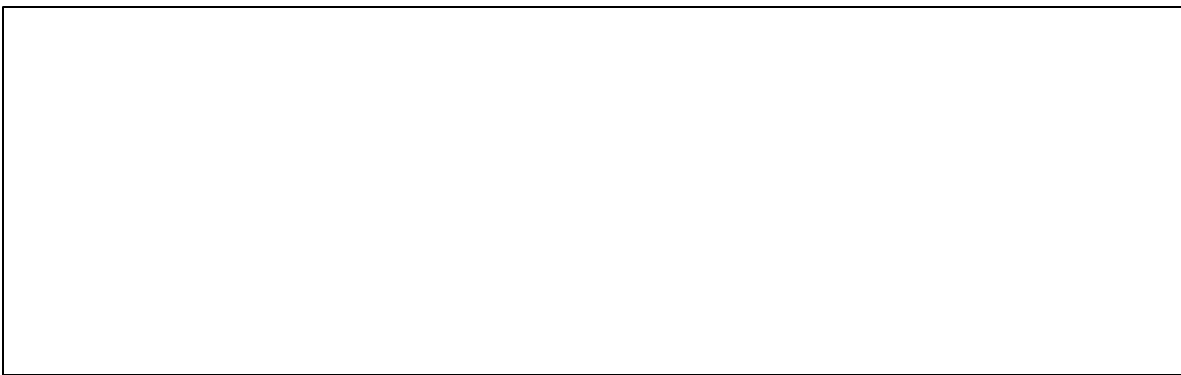
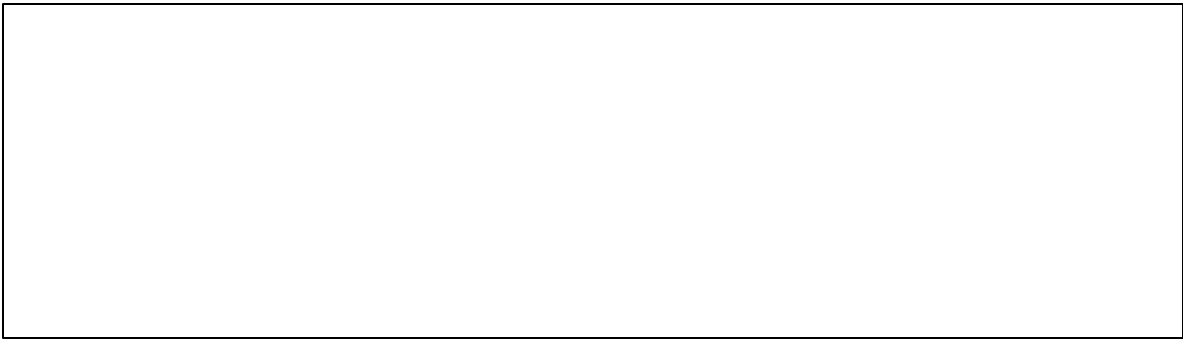
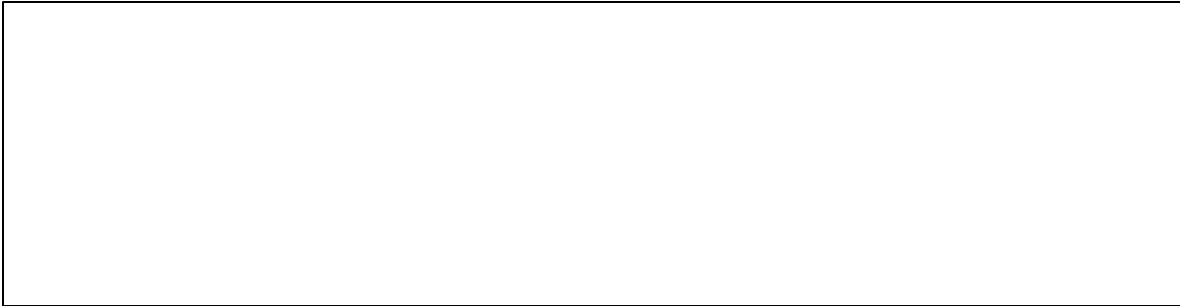
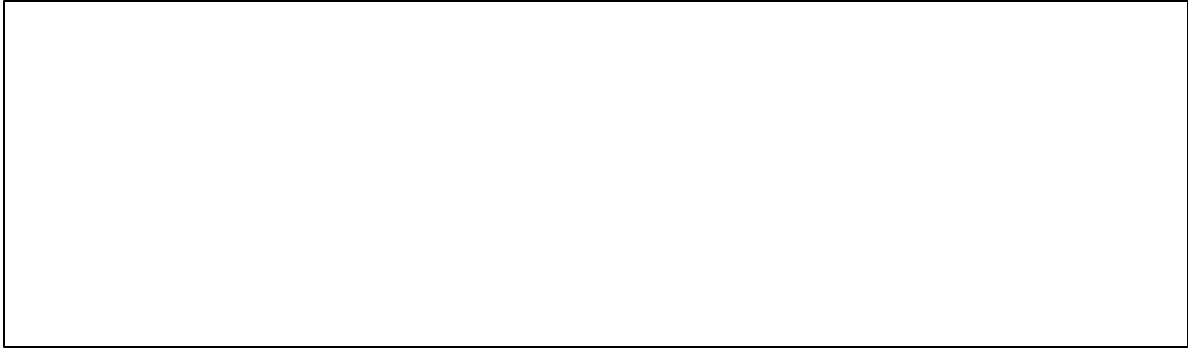
Legal and institutional constraints. In both Kenya and Uganda, though beans are marketed under a free (liberalised) market system with minimum government intervention, a number of constraints still exist. The complex methods of certification and stamp fees are one of main reasons for the presence of bribery at border crossings. This was evident at Busia, and Malaba border points. Institutional restrictions in form of lengthy documentation procedures involved in the issuance of licenses, coupled with high clearance fees, harassment by public officials and customs authorities, force many traders to resort to informal crossing points. Local councils particularly in Busia border point have instituted local taxes at the unofficial crossing points. This makes traders to incur more costs that were not planned for. Rent seeking practices among public officials at the major border crossing points and cumbersome import/export procedures encourage both large and small traders to pass their beans through undesignated routes. Instability of foreign exchange rates makes traders not to plan well for their business. Therefore, capital requirements, legal and institutional constraints are barriers to entry in the bean trade in the study area.

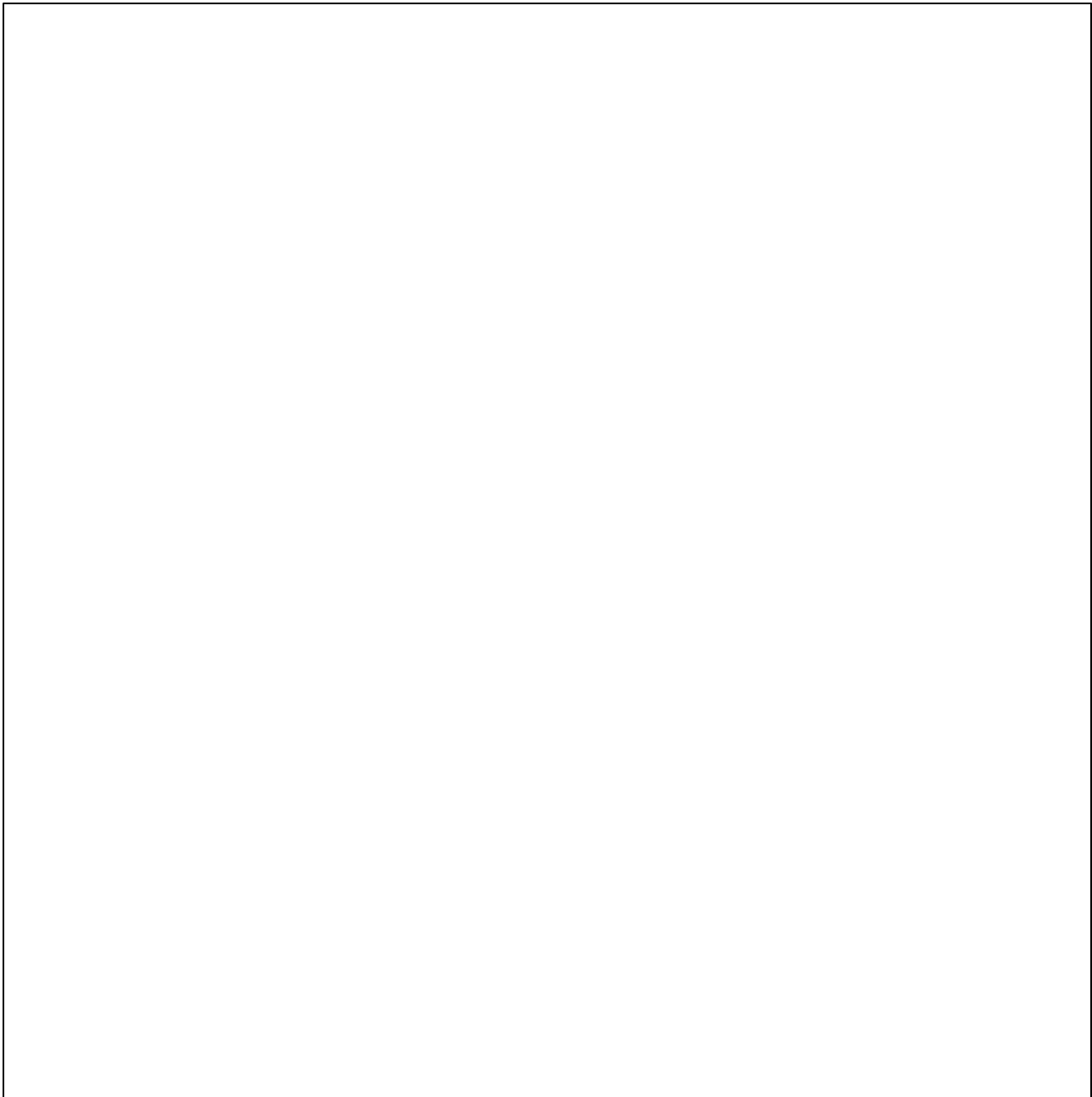
Market conduct of bean traders

In Uganda, most traders sell their beans by weighing in kilogrammes with a few selling in 2 kg Kimbo or Cowboy tins while in Kenya most traders sell in 2 kg Kimbo or Cowboy tins with only a few selling by weight. In both counties, these weights are not standardised and no regular check up is carried out. The pricing is determined by the market forces, which indicated a uniform price in each particular market. The uniform prices are arrived at by traders agreeing among themselves on what price they should sell depending on demand and supply of each day. Only 10.5% of the farmers set the price of beans. These are farmers who stored their beans for a considerable length of time after harvesting and, therefore, had a stronger bargaining power during the time of scarcity. However, 16.8% of the farmers had their price set by traders, while 72.6% reported that they negotiated with traders for a price agreeable to both parties.

Market participants. The participants involved in the bean marketing business included farmers, middlemen, upcountry assemblers, long distance wholesalers, agents, wholesalers based in each country, Ugandan exporters, retailers, and consumers.

Bean marketing channels. In Uganda (Kapchorwa district), the marketing stages are divided into four functional steps: from farmgate to primary (rural) market;





from primary (rural) market to agent's stores; from Kapchorwa district to Mbale; and from Mbale to Kampala. In Mbale district, there are also four functional steps in the marketing of beans: These are farmgate to middlemen, from middlemen to rural markets, from rural markets to agents' stores, then from agents' store to urban market such as Mbale Municipality, Mbale to Kampala or to Kenya border. The same case also applied to Kenyan markets.

Conclusion

Bean farming in the study area fulfilled the requirements of a competitive market. Poor market transparency and transport difficulties characterise the marketing system in the study areas primary markets. Although most producers sell their beans in rural markets, 21.2% of them learn prices on the day they arrive at these markets. The farmers determine the proportion of produce consumed and sold but traders control the price. At the retail and wholesale levels, none of the traders occupied a monopolistic position sufficient to influence market activities of other traders. Capital requirements and legal and institutional constraints are barriers to entry into the bean business in the study areas. Educational level and trading experience do not seem to be barriers to entry in bean business in the study area. There is potential in cross-border bean trade between Kenya and Uganda, that could be exploited through regional co-operation.

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