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MARKETING OF BANANA AND BANANA
PRODUCTS IN UGANDA: RESULTS OF
A RAPID RURAL APPRAISAL

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Summary

This report concerns a survey undertaken by NRI in Uganda during September and December 1993, which sought to characterise the banana and banana beer marketing systems. The study follows on from the recommendations of the Banana Based Cropping System Rapid Rural Appraisal (1991), and focuses upon the Kampala market.

The importance of banana as the major food crop has been highlighted, with freshness and maturity of the fruit of prime importance to consumers.

The banana marketing system appeared to be highly competitive at all stages of the marketing chain and was generally considered to function and perform well.

Post-harvest losses appear to be low at the urban trader level; it is estimated that in the order of 10 to 15% of produce is sold at a price discount. At the truck trader level, post-harvest losses were found to be low being in the order of 1 to 10% of the value of each consignment. The scope for potential cost-effective technical interventions is therefore limited.

Given consumer preference for a fresh product, a processed banana product is unlikely to offer an alternative or improvement in the eye of the consumer. Processed or novel products therefore need to focus upon new markets. Snack food was identified as a potential market provided a simple low cost snack food can be produced.

Banana beer appears to be a minor beverage for the urban consumer, where the market is unlikely to increase significantly as the economy expands.

Poor hygiene was cited by wealthier consumers as a major consideration in not purchasing and consuming banana beer. Any potential market for a better quality banana beer, however, is limited by the well established market for bottled beer and the image of banana beer as a "poor man's beer". For the lower income consumer, banana beer is attractive as a cheap alcoholic beverage, and any technical intervention aimed at improving beer quality must therefore have no or little impact on price if it is to meet success.

Post-harvest losses at the retail level were reported but are unlikely to be significant given the competitive nature of the marketing system.

A potential market for banana juice was identified. However, any technical intervention associated with improving shelf-life and hygiene must be cost effective, since any banana juice product will have to compete on price terms with the crepe and soda markets.

Waste material collected by the city council is not utilised by the council or livestock farmer, the latter because the material comprises both organic and inorganic material. Prior to any proposed utilisation of this waste, both the potential demand for livestock feed would have to be established as well as the implications of the seasonal nature of demand for livestock feed.

An informal system for collecting, sorting and transporting banana peels was identified, with market vendors who prepare meals for sale, identified as the major source of peels. The concentrated nature of the cooking stalls facilitates collection and sorting, keeping costs to a minimum.

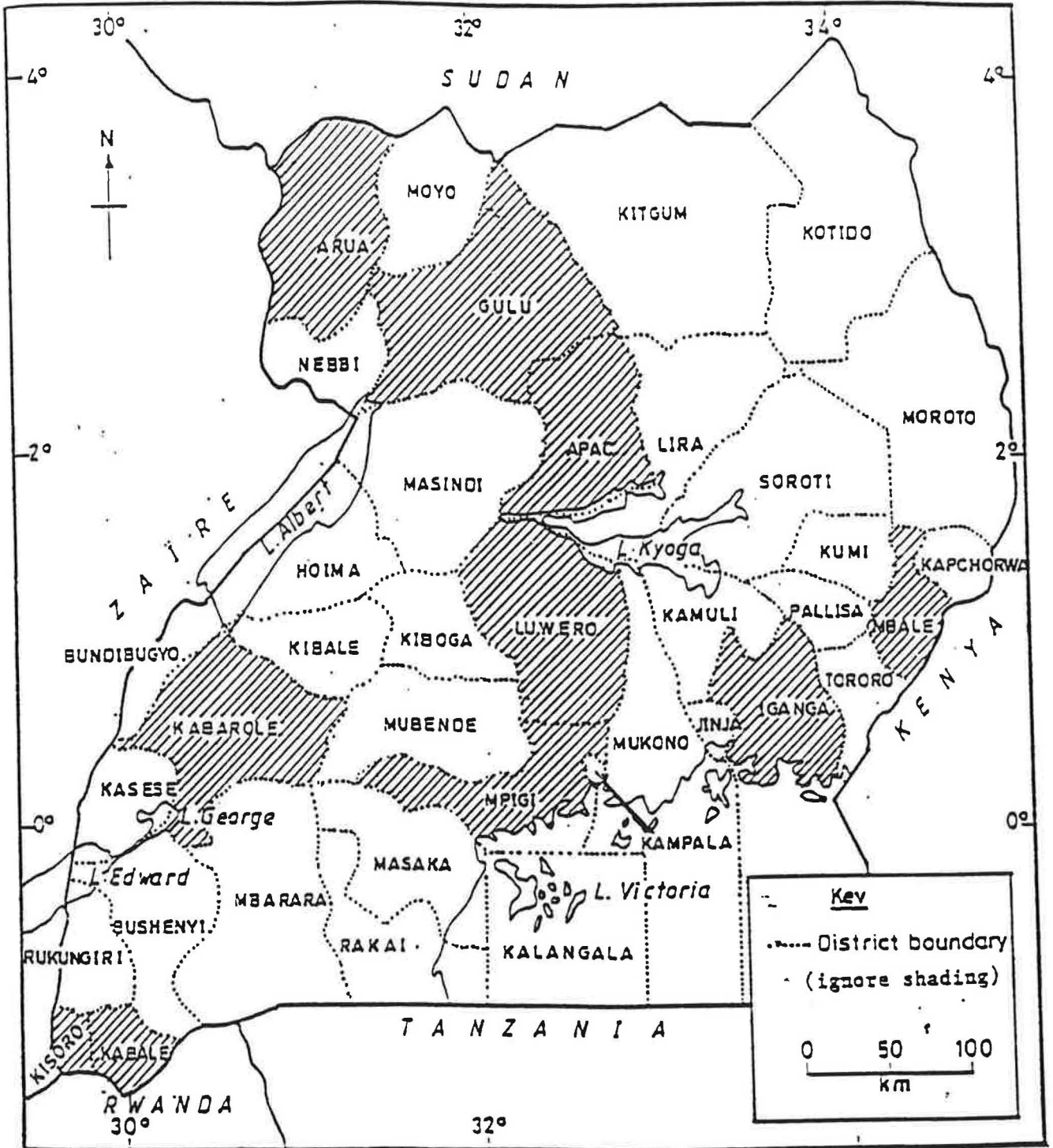
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ABBREVIATIONS USED IN THE REPORT

IITA	International Institute for Tropical Agriculture
KARI	Kawanda Research Institute
KCC	Kampala City Council
MT	Metric Tonne
MFP	Masaka Food Processors
NARO	National Agricultural Research Organisation
NRED	Natural Resource Environment Department
NRI	Natural Resources Institute
NBP	National Banana Programme
ODA	Overseas Development Administration
SHS	Uganda Shillings
UCTU	Uganda Cooperative Transport Union

UGANDA: ADMINISTRATIVE DISTRICTS



I. INTRODUCTION

Background

1. The study reported here was commissioned in light of the findings and recommendations of an earlier study undertaken in June - August 1991, "Banana-Based Cropping Systems Research : A Report on Rapid Rural Appraisal Survey" edited by Professor P Rubaihayo. This report investigated the banana marketing system, particularly at the village level. However, whilst it provided useful insights into post-harvest systems in the banana producing regions, aspects of the marketing system further along the marketing chain were not investigated. The report recommended a marketing and urban consumer study of bananas, in order to identify post-harvest constraints and research areas where the Ugandan National Banana Programme (NBP) and NRI could make a useful contribution.

2. The present study was undertaken in collaboration with Makerere University and compliments the recently concluded diagnostic survey by providing a socio-economic perspective on the post-harvest marketing system. The post-harvest component of the diagnostic study sought to examine post-harvest issues at the farm level, and was undertaken by NRI in collaboration with Kawanda Research Institute (KARI), Makerere University and the International Institute for Tropical Agriculture (IITA). Both activities were part of Phase II of the NBP.

3. This report represents the findings of post-harvest fieldwork conducted in two phases over the period September to December 1993.

4. The report begins with a description of the objectives of the study and the methodology employed. The rest of the report is then divided into three chapters covering the three product markets identified in the terms of reference: banana¹, banana beer and banana waste. The study for banana waste, although a separate study, is a potential area for future research as part of Phase III of the NBP. It was therefore decided that a study on banana waste could be conducted concurrently with the studies on banana and banana beer. The structure of each chapter will closely follow the numbered terms of reference which are given below.

Terms of Reference

5. The overall aim of the study is to characterise the banana marketing system and identify post-harvest issues

1/ Banana refers to the cooking type of banana, Matooke, throughout the report unless otherwise specified.

for research. More specifically, the terms of reference called for the following:

Banana and Banana Beer

- (a) Brief characterisation of main urban markets for banana and banana beer - scale, trends in size, competing products/relative pricing, consumer tastes and perceptions
- (b) Characterisation of the main market chains supplying these markets eg with respect to structure, market efficiency, degree of competition, employment
- (c) Brief characterisation of main supplying areas for banana/banana beer, including the place of banana within changing cropping systems and the characteristics of households producing surplus for sale in comparison to those that do not.
- (d) Identification of any major issues relating to seasonality (of supply)
- (e) Identification of the main long term trends in supply, marketing and market demand
- (f) Analysis of current and potential major problems confronting the sector including those identified by current participants
- (g) Where possible, consideration should be given to the market potential for novel products
- (h) Identification of appropriate research issues where NRI/ Uganda National Banana Programme could make useful contributions

Urban Banana Waste

- (a) Describe distribution channels for banana waste indicating where it occurs, how it is used, and who is involved
- (b) Where possible, provide a quantitative assessment of the waste material
- (c) Assess current trends in banana waste utilisation, with particular attention to any emerging changes
- (d) Give consideration to factors determining its use, and hence to the likely constraints/opportunities for improved utilisation
- (e) Provide comment on financial, social and institutional aspects of any specific

utilisation concepts being proposed at the time of study

Methodology

6. This study made use of an informal approach to data collection, the virtues and potential drawbacks of which are well documented (J Gilling and J Cropley; Needs Assessment for Agricultural Development, Socio-economic Series 1, Natural Resources Institute). An informal approach was adopted for a number of reasons. The information sought is primarily qualitative with an emphasis upon understanding the processes and relationships of the marketing system. The inflexibility of more formal approaches to data collection is less well suited to this form of investigation, with the complexities and subtleties of the marketing systems unlikely to be fully captured with the use of a structured questionnaire.

7. It was decided that it would be beneficial to commence an examination of the marketing systems, for each of the products, at the urban end of the marketing chain. The primary reason being that it was necessary to identify, at the initial stages of the study, the major marketing chains supplying the Kampala market. It was only by doing so that both the fieldwork and structure of the study could be formulated. Details of specific site selection associated with each product are given in each of the separate product chapters.

8. Individual and group interviews were carried out with purposively sampled representatives at all of the key stages of the marketing chain. Key informants identified and interviewed included urban consumers, urban market traders (both retail and wholesale), market administrators, market porters, truck operators, provincial market traders, bicycle traders, brokers, independent farmers and members of farmer groups.

9. Secondary information of relevance to the banana marketing systems study was also used to compliment, cross-check and enhance the explanatory power of the survey. A list of individuals with whom discussions were held is presented in Appendix 1.

II. BANANA

URBAN MARKET FOR BANANA

Market Size

10. When discussing the urban market, the report is referring to the Kampala city market. Kampala is by far the largest urban centre in Uganda with 774,241 people. By comparison, Jinja the second largest urban centre, has a population of 65,169 (1991 Population and Housing Census).

11. An estimate of the size of the Kampala market may be obtained by using the information provided in the National Household Budget Survey which was carried out between April 1989 and March 1990. This survey provides a breakdown of household expenditure for a wide range of food items including banana. This information, used in conjunction with retail price data for Kampala, may be used to estimate the size of the banana market in Kampala. The details of the calculations involved are given in appendix 2. The market size was estimated to be in the order of 120,000 MT per annum. This amounts to a 0.45 kg per person per day.

12. In an attempt to gauge the accuracy of this estimate, this figure was translated into the number of truck loads of banana arriving in the Kampala market per day and compared with estimates given by truck operators themselves. Assuming 400 bunches are loaded per truck (Tata 7 tonne truck) weighing on average 22kg each, this translates into 38 truck loads per day. Estimates reported by truck operators range from 30 to 50 truck loads per day depending on the time of year. Both sources of information therefore provide a similar estimate of the market size which suggests that a figure of 120,000 MT can be regarded as a realistic working figure.

13. The lack of secondary data does not permit an assessment of the changes in the size of the Kampala market over time. However, market agents at all levels of the marketing chain reported that the number of truck loads going to the Kampala market had increased in recent years. Future urban demand will depend upon future trends in urban population growth, real growth in per capita incomes and the change in demand for banana with income (income elasticity of demand). Assuming an urban population growth of 5.0%² (population growth was 4.8% per annum in Kampala district between 1980 - 91), an income elasticity of demand of 0.16%³ and real income

2/ World Bank 1992 Uganda: Agricultural Sector Memorandum. Volume II Main Report

3/ Buchanayandi 1990. Uganda: Accelerated Foodcrop production strategy. USAID

growth rate of 1.5%⁴, urban demand is projected to rise by 5.24% per annum. As with all demand projections, this figure should be treated with caution. Household expenditure data suggest that an income elasticity of demand of 0.16% may understate the true figure (paragraph 17). If this is the case, the growth in future urban demand may be in excess of 5.24% per annum. Discussions with urban traders, however, suggest that income is the major constraint to higher consumption (paragraph 14). To the extent that income growth falls short of the 1.5% figure given above, urban demand may well be below 5% per annum.

Demand and Consumption

14. Banana plays a central part in the diet and culinary culture of Uganda as is epitomised by the well known adage "Food is Matooke". The general impression from the large majority of consumers interviewed is that banana is the preferred food staple, with income being the major constraint to higher consumption. A number of retailers reported that consumers were increasingly being forced to buy smaller quantities of banana in the form of hands and fingers rather than whole bunches because of pressure on peoples incomes. The recently concluded study on sweet potato marketing in Uganda⁵ undertook a ranking exercise to gauge consumers preferred and most consumed foods. A summary of the results is presented in Table 1.

Table 1

Consumption of and Preference for Staple Foods (%)		
	Most Consumed	Most Preferred
Banana	31	56
Maize meal	31	0
Rice	19	19
Sweet potato	12	19
Irish potato	6	0
Millet	0	6

Source: Fowler & Stabrawa July 1993, Sweet Potato Marketing in Uganda: Results of a Rapid Appraisal

15. These results serve to confirm the general impression of banana being both the most preferred and consumed staple. The significant difference between the most preferred and consumed figures, however, suggest

4/ Ibid.

5/ Fowler & Stabrawa July 1993, Sweet Potato Marketing in Uganda: Results of a Rapid Appraisal

that there is considerable scope for a further increases in consumption. For this to take place, however, improvements in incomes and/or a reduction in the price of banana would be needed. An examination of the performance of the marketing system and the potential scope for reducing marketing costs is undertaken in paragraphs 49 to 54.

16. The Household Budget Survey also serves to reinforce the picture of banana being the most important food staple. Monthly expenditure data and the proportion of monthly household expenditure for each of the major staples are given in Table 2.

Table 2

Average Monthly Household Consumption Expenditure: Kampala City		
	H/hold Monthly Expenditure (shs)	% H/hold Total Expenditure
Banana	4121	6.87
Maize	1619	2.70
Sweet potatoes	1218	2.03
Rice	1159	1.93
Cassava	917	1.53
Irish Potatoes	322	0.54
Millet and Sorghum	160	0.27
Other (yams and tubers)	59	0.10

Source: National Household Budget Survey (1989-90)

17. Banana remains the most important food item, in terms of household expenditure, across different categories of households (expenditure groups). A breakdown of household expenditure by expenditure groups is given in appendix 3. The data also show that of all of the food items listed, banana is the only food for which the proportion of household expenditure rises from the low income to middle income expenditure classes. This characteristic is normally associated with food products (eg livestock products) with higher income elasticities. Indeed this is the pattern for beef, goat meat, and chicken. This suggests that the an income elasticity of 0.16% (paragraph 13) may underestimate the true figure. To the extent that this is true, projected urban demand is likely to be in excess of 5.24% per annum.

Prices

18. The real price of banana in the Kampala market has remained broadly constant over the 1989 to 1993 period (figure 1), suggesting that supply to the Kampala market has kept pace with the expanding urban market⁶.

19. In terms of the price of possible substitute foods, the price of both maize meal and rice, two of the more important food staples when judged against household consumption expenditure (table 2), showed a slight downward trend relative to the price of banana (figures 2 and 3). The relative price of sweet potato and banana changed very little over the same period, while cassava was the only food from this group which experienced a slight upward trend in its relative price (figures 4 and 5).

20. The implication of these relative price changes, and the extent to which consumers switch between each of these food crops, is unclear in the absence of empirical estimates of the cross elasticity of demand⁷. It is probable that the level of household income is likely to be a significant factor determining household consumption behaviour, with lower income households more likely to switch to relatively cheaper alternatives.

21. Banana prices are subject to a high degree of seasonality with price falls associated with the seasonal glut during the dry months of June and July (figures 9 and 10). The highly integrated nature of the marketing system (paragraph 53 and 54), ensures that seasonal changes in banana production manifest themselves in changes in price in the Kampala market. Seasonal price movements, not only of banana, are likely to have a significant effect on household consumption patterns throughout the course of the year.

Consumer Perceptions

22. A more in-depth insight into the nature of demand for banana can be gained when it is recognised that banana is not a homogeneous product. Consumers have the option of purchasing different varieties of banana, sizes of bunch, hands, fingers and bananas at various stages of maturity. Consumer choice such as this will have a bearing on the nature of consumer response to changes in

6/ Although banana is not a homogeneous product, the price data collected by the Ministry of Finance and Economic Planning, refers to the price per kg of fresh/mature banana and is collected on a per kilo basis by actually buying and weighing the produce. A standard product is therefore used as far as possible.

7/ The extent to which the demand for a product changes with a change in price of another good.

the relative price of banana in relation to other food crops. To the extent that banana is the preferred food, consumers have the option of buying cheaper more mature bananas, or alternatively they can choose to buy smaller quantities of the preferred fresh green banana. Both forms of behaviour were reported by consumers although the latter appeared to be more prevalent. Freshness and maturity are of prime importance in the consumer's purchase decision.

23. When assessing maturity, consumers referred to colour, sheen and lack of ridges. Ripe banana was not considered suitable for cooking being regarded as a snack food only.

24. A small quantity of peeled banana was sold, almost exclusively to restaurant owners, who use the banana in a relatively short space of time. Batchelors also buy to save them having to peel. Generally, peeled banana is not sold since it is regarded as unhygienic, perishes more quickly and the flavour is impaired after a few hours.

25. At the market level, bananas are differentiated according to the size of bunch and the maturity of the bananas, with urban market prices broadly following these two criteria. Variety of banana was not an important consideration for the consumer and is not an important factor in the determination of prices. This characteristic was found throughout the marketing chain.

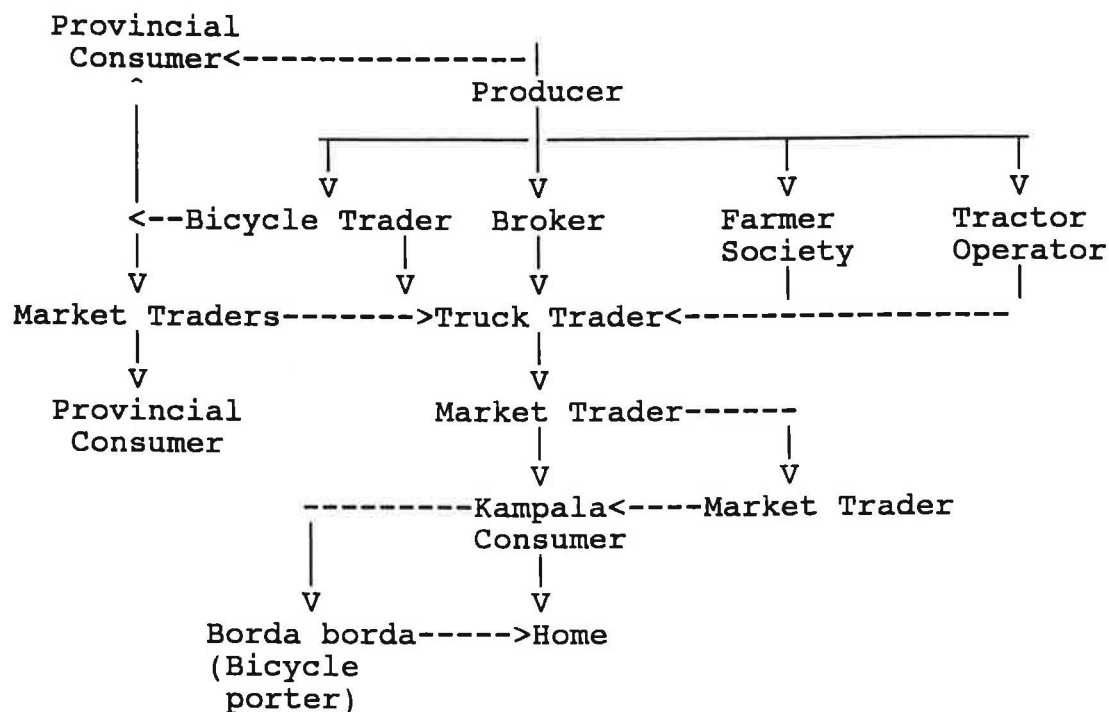
MARKETING CHAINS

Identification

26. The main marketing chains supplying the Kampala market were investigated. Interviews were first undertaken in the major city markets, being considered the most effective means of identifying the marketing channels, both in terms of the market participants and the major supplying areas. Figure 6 illustrates, by way of a flow diagram, the marketing structure identified.

Figure 6

Structure of the Banana Marketing System



-----> Direction of product flow

27. Each stage of the marketing chain will be examined in turn, with emphasis placed upon the major marketing chains serving the Kampala market. Attention will be focussed upon the structure and conduct of the marketing system, with an examination of both horizontal and vertical relationships between each of the market participants. This will be followed by an assessment of the performance of the marketing system, with reference made to the overall efficiency of the marketing system and the nature and scale of post-harvest losses. By doing so, an assessment can be made of possible areas where further research can be directed.

Kampala City Markets: Urban Market Traders

28. Kampala city has 62 licensed markets which fall under the auspices of the Kampala City Council (KCC). An unknown number of unlicensed markets exist, ranging from individual households selling produce from their doorstep, to larger more visible market areas. For the purposes of the study, markets were selected on the basis of their location within the city with the aim of achieving a geographical spread of markets within Kampala city and district. The justification for this was to ascertain whether the sources of supply varied according

to location within the city. The markets visited are listed in Table 3.

Table 3

Market	Location within Kampala
Owina	Central Kampala
Nakawa	North East Kampala, (Jinja Road)
Kyengera	South West Kampala (Masaka Road)
Mabingo	South West Kampala (Masaka Road)
Najanankumbi	South Kampala (Entebbe Road)
Nsambya	South Kampala (Entebbe Road)

29. Each of the markets visited had a designated area (department) where banana vendors operate. Vendors' associations were established at each of the markets based upon these commodity departments. The primary reason for the formation of the associations, was to provide a "voice" for the market vendors in their dealings with the City Council. In particular, a representative of the vendors' association sits on the KCC Market Management Committee which has the authority to allocate market stalls. Market vendors regarded such a system as fair, with representatives of the KCC, vendors' association and Resistance Councils offering a transparent and democratic process for allocating market stalls. The only restriction on entry into the market as a market vendor appeared to be the limited space available at each site. Other functions of the associations include educating vendors regarding the rules and regulations of the market, resolving disputes between vendors and ensuring market vendors pay the appropriate market fee to the KCC.

30. The limited space within each market and the prevalence of vendors' associations might be regarded as providing a basis for potential market power and collusive behaviour on the part of market traders. However, it became apparent that vendors act very much on their own when selling their produce. The number of vendors within each market and more importantly the large and growing number of markets within Kampala itself, provide the conditions for a highly competitive environment. Indeed, market administrators and market vendors cited the proliferation of markets as a major factor which has adversely affected their business.

31. Start up costs at the market level are small, with market stall fees 3450sh (£2.00) per month for KCC licensed markets, the cost of hiring a watchman and purchasing produce for sale the primary costs involved. As a means of reducing the initial set up costs, traders often commence trading by purchasing small quantities of fingers, often from other market vendors, and gradually building up their business over time. The existence of a

wide class of traders within the city markets, both in terms of product form (fingers, hands and bunches) and the quantity of produce for sale, facilitates market entry and promotes increased competition.

Truck Operators

32. Long distance truck operators provide the link between the producing areas and urban markets. These operators tend to hire trucks on a trip basis, with trucks available for hire from private truck owners and the Uganda Cooperative Transport Union (UCTU). Private truck hire dominates the market, being considered the more cost effective and flexible alternative by each of the truck operators interviewed. A detailed examination of the relative merits of private hire and hire from the UCTU was not undertaken.

33. A number of private truck depots were visited in Kampala, at Katwe, Katimba and Bwaise, where truck drivers were interviewed (truck drivers act on behalf of the truck owners and are hired along with the truck). Truck owners appeared to act independently with no formal or informal associations evident. The number of trucks available for hire at each of these sites was also reported to have increased in recent years. This supports the earlier statements made by farmers and urban market traders of an increasing number of trucks transporting banana to the Kampala market.

34. Instances of truck operators sharing a truck, as a means of reducing initial entry costs, were identified, facilitating entry into the market and promoting competition. Seasonal entry and exit was also reported with the number of operators rising during the dry season. This period is associated with a seasonal glut (low banana prices) and reduced time and risk associated with identifying sources of supply (although the time and risk associated with identifying markets in Kampala may be increased). Peak harvest periods associated with "competing" crops such as sweet potato and Irish potato, were reported as not having a significant impact on the availability of trucks. Smaller trucks and pick-ups are more commonly used for the transportation of these crops.

35. At the producer end of the marketing chain, truck operators have a number of options when purchasing banana. They may purchase from farmers direct, brokers or farmer cooperatives, bicycle traders and tractor operators. Purchasing from farmers direct was common only when dealing with large commercial farmers with whom regular contact had been established. Otherwise the risk associated with farmers not having produce available for sale, and the time and cost of obtaining a full load by this means, was not considered as an efficient way of purchasing produce. The use of brokers or cooperative societies reduces the costs associated with identifying produce as well as the time of loading. Bicycle traders

fulfil the same function, although a number of disadvantages were cited. Produce tends to be more expensive when purchasing from bicycle traders, since they tend to transport medium bunches (not the larger bunches) and the bunches may not be freshly cut. Tractor operators are an option during the wet season when access to farms is more difficult and the supply of banana is reduced.

36. At the urban market, truck operators often have regular markets and buyers with whom they deal with. Trucks would visit each of these markets until the full load had been sold. Discharging may take anything from 2 to 3 hours to 2 days. The latter is more common in the dry season when produce is readily available in the Kampala market.

37. A very small quantity of banana reaches Kampala by train. The railway network connects Kampala to Kasese via Mityana but does not serve the major producing regions of Mbarara, Bushenyi and Masaka. The train timetable for both goods and passenger trains (a road or brake van can be attached to passenger trains which can carry goods) is also subject to change and delay. Rail transport is therefore likely to remain of marginal importance while these conditions prevail.

Bicycle Traders

38. The bicycle trader system appeared to be competitive with a large number of independent bicycle traders operating in the villages visited. Entry costs are low, the main cost being the bicycle (90,000shs). It was also reported that it is possible to hire bicycles as a first step to entering the trade. Access to formal collection points, which operate in much the same way as a market, was reported as being open to anyone, the limiting factor being stall space at each of these sites. Instances of bicycle traders congregating along the roadside were also observed as a means of attracting truck traders. Barriers to entry therefore appear to be low.

39. Bicycle traders provide an important service to both farmers and truck operators. Although the cost per bunch to the truck operator is usually higher than if purchase direct from the farmers, by collecting from formal and informal collection points, the cost to the truck operator in terms of time and money (transportation and loading costs) and the risk of not identifying sources of produce are reduced. From the farmers point of view, notably the smaller farmers, the bicycle trader fulfils an important function by connecting farmers that may otherwise be left out of the marketing system. Furthermore, the competitive nature of the market makes it likely that charges broadly reflect the cost of the service provided.

40. In Mbarara, an additional layer in the marketing chain was identified at Rutooma. Bicycle traders in this locality were obliged by the district authority to sell to market vendors in the local market, who in turn sold to the truck operators. The reason for this arrangement was not entirely clear, but appeared to facilitate the collection of tax revenues by the District Authority. Bicycle traders were charged 100sh per bunch as a market due. Having said this, market dues were also levied at other formal collection points within the region where bicycle traders were not obliged to sell to market vendors. Bicycle traders complained "that they were not exposed to the market". Any attempt at avoiding this process would result in them being debarred from the market restricting their access to the truck operators.

Producers

Producing Areas

41. Interviews with urban market traders and truck operators indicated that Mbarara, Masaka, Bushenyi, Rakai and Singo were the major sources of supply for the Kampala market, with Mbarara, Masaka and Bushenyi districts considered the most important. Production data confirm that all three districts are major producers of banana (appendix 4) supporting the finding that these districts are potentially the major suppliers of banana to the Kampala market.

42. The following villages were visited in each of the districts (table 4).

Table 4

District	Village
Mbarara	Kishooro Kishuuro Kaberebele
Bushenyi	Itenbero Rutooma Bukiuro Nyakwebundika
Masaka	Misanuu Biyoga Kiranya Nakalembe

43. A detailed characterisation of the farming systems for banana was not undertaken, being considered out of the scope of the present study. Readers are referred to the 1991 study "Banana Based Cropping Systems Research". However, in all of the villages visited, banana was the

major cash crop alongside coffee. The importance of banana as a year round income source was also emphasised compared with the seasonal nature of coffee. Farmers reported that banana had been a major income source from the mid-seventies, coinciding with the growth of urban demand for banana, improvement in transport infrastructure and decline in coffee prices.

44. A number of alternative marketing systems were identified at the producer level with farmers selling to village brokers (acting as the go-between for farmers and truck operators), bicycle traders, farmer cooperatives and tractor operators. Not all options, however, are open to each farmer.

Independent farmers

45. A general finding was that the larger farmers tended to have a wider number of sale options. Larger farmers are more likely to be in a position to attract truck operators directly to their farm by having larger quantities of produce available for sale. Smaller farms were often only visited by trucks as a means of topping up their load. This general picture was reinforced in the dry season (June - August) when produce was readily available and truck operators had no need to search for scarce supplies. Smaller farmers were therefore found to be more reliant on bicycle traders to purchase their produce (paragraph 39).

46. The use of brokers was common with truck traders tending to go through brokers rather than deal with farmers directly. Brokers effectively match farmers with prospective buyers. Farmers generally reported a number of potential brokers they deal with.

Farmer Cooperative Societies

47. An alternative marketing arrangement was identified in the Mbarara and Bushenyi districts, with cooperative societies acting as the link between farmer and truck operator. Two cooperatives societies were visited, Bukiiro Cooperative Society and Nyakwebundika Multi-Purpose Cooperative Society, Bushenyi. Both cooperatives were formed on the instigation of the farmers themselves and appear to be working well. Two major advantages associated with the use of a cooperative system were noted. First, the cooperative society is in a good position to attract truck operators by offering a large quantity of produce for sale, benefiting both large and small farmers. Second, cooperatives appeared to have better access to market information than many of the independent farmers.

48. The major problem associated with the management and operation of the society was with farmers by-passing the cooperative agents and selling direct to the truck operators, thereby avoiding the payment of commission to

the cooperative. This problem was said to be more prevalent during the wet season when banana is in short supply and high prices can be realised. The classic problem of potentially conflicting individual and group interests can lead to the breakdown of farmer groups. Indeed, a number of dormant cooperatives were reported in the Masaka district where this problem had in fact lead to the dissolution of the societies.

Market Performance

49. Having described in some detail the market structure at each level in the marketing chain, and the conduct of the various participants, there now follows an assessment of the overall performance of the marketing system. The term market performance, is used to describe the efficiency of the marketing system⁸. Owing to the complex and contentious nature of what is meant by market efficiency, a number of performance criteria are commonly used.

Marketing Margins

50. Market margins are commonly used as a means of assessing the efficiency of resource allocation in production, distribution and consumption. Ideally, the de-construction of marketing margins into their cost and return components, at each level of the marketing chain, would enable a comprehensive assessment of the efficiency and performance of the marketing system. However, given the nature of the rapid assessment approach undertaken, a detailed breakdown of marketing costs was not possible in the time available.

51. In the absence of detailed cost information, an analysis of gross margins (the difference between prices at each stage of the marketing chain), used in conjunction with market information gleaned from the various marketing agents, may offer an indication of economic performance. Market price data for the Masaka and Mbarara urban markets are used as a proxy for producer prices. It is recognised that market price data (retail) are an imperfect proxy for producer prices, since these market prices embody both rural trader (bicycle traders tend to supply the regional Masaka and Mbarara markets) and retail trader markups. The competitive nature of the marketing system at the bicycle trader and retail level can be used to justify the use of urban market prices, based upon the premise that changes

8/ Market efficiency uses perfect competition as the standard with which to assess and evaluate a market. Broadly speaking, efficiency refers to the efficiency of resource allocation in production, distribution and consumption, and implies the lowest cost system of distribution with no operator extracting "super-normal" profits.

in producer prices are likely to be reflected in changes in regional urban market prices.

52. Producer-urban consumer gross margins (real margins) appear to show a declining trend over the last four years (figures 7 and 8). This decline is due to increasing real producer prices, while real urban consumer prices (Kampala) have remained broadly constant over the same period. The increasingly competitive nature of the marketing system at both the truck trader level (the number of truck operators was reported to have risen in recent years) and in the Kampala urban markets may offer some explanation to this possible decline. The organised nature of the marketing system, with the widespread use of brokers, and to a lesser degree farmer societies, may also have contributed to improved operational efficiency.

Market Integration

53. The degree of spatial market integration is often used as a measure for assessing economic efficiency, i.e. the ability of the marketing system to eliminate spatial price differences in excess of transfer costs. Discussions with key informants at each stage of the marketing chain, as well as observation as to the direction of the physical flow of banana, would suggest that the markets are in fact highly integrated. A comparison of the movements of real monthly prices for banana in the Kampala market and Masaka and Mbarara markets, Figures 9 and 10, appears to confirm this finding.

54. The available evidence would suggest therefore that marketing agents are aware of profitable trading opportunities, are able to respond to price incentives, and the competitive nature of the market ensures efficient activity.

Post-harvest Losses

55. The scale and nature of post-harvest losses, whether physical or economic, is of fundamental importance in forming a view of the efficiency and performance of the marketing system. While it is recognised that subjective estimates and opinions have to be treated with caution, by eliciting views from a wide cross section of market agents, a degree of cross-checking was possible. Each stage of the marketing chain is examined in turn commencing with market traders in the Kampala market.

Urban Traders

56. At the urban market level, interviews with urban traders, market administrators and market porters (responsible for waste disposal) gave a general impression of low levels of physical waste. Traders reported that physical losses are kept to a minimum by adjusting the quantity of banana bought in accordance

with the prevailing market conditions. In addition, prices are also reduced over time to encourage a sale. In instances where fingers ripen on a bunch, vendors can either remove the ripe fingers and sell the remaining bunch at a discount, or if the majority of fingers are ripe, remove the unripe fingers from the bunch for sale. Ripe fruit is often given away since consumers do not consider it suitable for cooking.

57. Ripening time varies over the course of the year, with the dry season hastening the ripening process. Methods of keeping the produce cool are rudimentary and entail produce being stored on the ground, either covered with sacks or papyrus grass, or more rarely, under crude shelters.

58. Economic losses occur to the extent that prices are reduced the longer produce is stored. The price reduction not only reflects the age of the produce for immediate consumption purposes, but also the shelf life to the consumer after purchase. A time period of three days appears as the threshold after which prices are reduced and economic losses occur. The degree to which prices are discounted will vary between market vendor and the condition of the produce. The following figures (table 5) are based upon reports given by market vendors.

Table 5

Estimates of Discounts for "old" Banana		
No of Days held by Vendor	Price per Bunch	Discount (%)
Fresh	2700-3000	
3 days old	2300-2500	15-17
4 days old	2200-2300	18-23

59. The quantity or proportion of produce which is sold at a discount will vary between vendors, markets and the time of year (discounts are more likely to occur in seasons when produce is abundant). Given the daily flow of produce to Kampala, and the competitive nature of the marketing system, it is unnecessary to keep produce for longer than a three day period. The quantity sold at a discount is therefore unlikely to be above 10% to 15%. Traders buy a quantity of banana in accordance with the prevailing market and will avoid having to sell produce at a discount.

Truck Operator

60. Reported figures of post-harvest losses at this level of the marketing chain were even more variable. Reasons given for physical loss were damage and ripening of produce during loading and transportation. 20 - 40

bunches was regarded as the number of bunches that could be expected to get damaged or ripen per trip. Assuming a truck load of 400 bunches, this represents 5 - 10% of the load.

61. Ripening of produce was generally not considered to be a major problem except in instances of truck breakdown (entire truck loads can be lost) and where loading and unloading delays occur. Delays in discharging produce are more common in the dry season when produce is abundant, while loading a full truck may take longer in the wet season during periods of scarce supply. Ripe produce is often given or thrown away.

62. Damaged fruit caused by bruising and broken fingers from bunches was cited as the more common problem. This fruit is rarely thrown away and is instead sold in the form of fingers or as bunches at reduced prices.

63. An assessment of economic losses is dependant therefore upon the number of bunches which ripen or are damaged, the prevailing market price and the discounted price for damaged or ripe produce. Taking two possible scenarios of 20 - 40 bunches being damaged and 20 - 40 bunches ripening, a crude estimate of the scale of economic losses can be made (table 6).

64. The calculations are based upon the following assumptions:

- a full market price of 3000shs per bunch
- discounted market price for damaged fruit of 2000shs/bunch
- zero value placed upon ripe fruit.

Table 6

Estimated Economic Loss per Trip				
No of Bunches Per Trip	Full Price (per bunch)	Discounted Price	Economic Loss	Economic loss as a % of total value of consignment
Damaged				
20	3000	2000	20000	1.6%
40	3000	2000	40000	3.3%
Ripen				
20	3000	0	60000	5.0%
40	3000	0	120000	10.0%

65. Aside from the total loss due to breakdown, these figures represent the range of losses reported by the truck traders. As a percentage of the value of a full truck load, 1.2 million shillings (400 bunches at 3000 shs per bunch), economic losses are not significant ranging from just over 1 to 10%.

Farmer

66. A detailed assessment of post-harvest losses at the farmer level was not possible in the time available. The recently concluded diagnostic survey, which examined the issue of post-harvest losses at the farmer level, will provide a comprehensive picture of the nature of such losses.

Market Potential for Novel Products

67. Consumer preferences with regard to fresh banana were documented in some detail (paragraph 22 to 25), with the taste and texture associated with fresh green and mature bananas emphasised by all of the consumers interviewed. Given the central role banana plays in the diet and culture of Uganda, with emphasis on the fresh product, the identification and development of possible novel products should avoid trying to develop possible substitute products and instead try to focus upon possible new markets.

68. One possible and as yet untapped market is the market for snack foods. Of the wide range of snack foods available in the Kampala market (groundnuts, potato crisps, dried soybean, dried maize (berenge), sim sim, ground soybean (bagiia)), banana snacks did not appear to be available. Banana pancakes⁹ (Kalabalaga) were identified as a snack food in the rural areas but did not appear to be a common snack food in Kampala. The reason for this was not established but may reflect a difference in urban consumer tastes (although consumer preference for banana was firmly established, this was for banana in its fresh form, a processed product will have both a different taste and texture). Banana is also a high value product relative to many of the other foods used in the preparation of snack foods, it may be that this limits the scope for deriving a low cost banana based snack food which can compete effectively with the other low cost snack foods available. These are issues which needs to be clarified if further research into banana snack foods is to be undertaken.

69. The urban market for snack foods is characterised by small street vendors and retail outlets. The more durable snacks (groundnuts, dried soybean, dried maize and sim sim) tend to be purchased by these retail traders from the major urban markets, while potato crisps and ground soybean based snacks, which have a short shelf

9/ Kabalagala is made using dessert varieties

life, are often made and packed in polythene bags at home. A number of private small scale enterprises were also identified (eg Tomcris Enterprises P.O. Box 432, Kampala), which pack and distribute snackfoods within the Kampala market.

CONCLUSIONS AND RECOMMENDATIONS

70. Post-harvest losses at the urban trader level appeared to be low in terms of both physical and economic losses. The competitive nature of the marketing system and daily flow of produce to the market, allow traders to purchase banana in quantities which they can reasonably expect to sell within a 3 day period, thereby avoiding the need to sell at a price discount to clear stocks. It is estimated that in the order of 10 to 15% of bunches are sold at a price discount.

71. Post-harvest losses at the truck trader level were more variable, with damage and ripening of produce the reasons given for physical and economic losses. Economic losses associated with ripening of produce are the more serious problem, with ripe fruit having little or no economic value. Even so, economic losses were found to be low as a percentage of the value of each consignment (1 to 10%). The scope for potential cost effective technical interventions eg packaging, is therefore likely to be very limited.

72. The central importance of banana as the major food staple, has been highlighted. Consumers are specific in the characteristics they look for when buying banana, with freshness and maturity of the fruit of prime importance. Although processing is often viewed as a means of adding value to a product and as a potential source of income generation, in the context of banana, a processed banana product is unlikely to offer an alternative or "improved" product in the eye of the consumer. The development of processed or novel products should therefore avoid possible substitute products for fresh banana and instead focus upon possible new markets.

73. A potential and as yet untapped market is the snack food market. Of the wide range of snack foods available, no banana snacks appeared to be available in Kampala, with the possible exception of banana pancakes. The reason for the absence of banana snack foods was not firmly established. However, urban consumer tastes and the fact that banana is a high value food relative to other foods used in snack foods, may be the primary constraints restricting the market for banana snack foods. These are issues which need to be firmly established before further research into possible snack foods is advocated. Given consumer acceptability, the scope for identifying and developing a banana based snack food depends upon the ability to produce a simple, low cost snack food.

II. BANANA BEER

URBAN MARKET FOR BANANA BEER

Market Size

74. The National Household Budget Expenditure Survey provides a breakdown of household expenditure for a wide range of beverages including banana beer (tonto). This information, used in conjunction with retail price data for Kampala, can be used to estimate the size of the banana beer market in Kampala. Details of the calculations involved are given in Appendix 5. The banana beer market was estimated to be in the order of 1,800,000 litres per annum.

75. It is recognised that consumers are often unwilling to divulge information regarding their consumption habits of alcoholic beverages, and therefore this figure is likely to under-state actual consumption levels. As a means of cross-checking this figure, traders at each of the two main wholesale markets for banana beer (Ndeeba and Kiswenyi) were asked to estimate the number of jerrycans which arrive per day at each of these markets. At Ndeeba, the main market, five pick-ups each carrying approximately fifty jerry-cans (20 litres/can) arrive per day, while at Kiswenyi, two pick-ups carrying the same amount arrive per day. This translates into 1,820,000 litres and 728,000 litres per annum respectively. The combined total for these two markets comes to 2,548,000 litres.

76. This figure is also likely to significantly under-state the market size of banana beer since a large, if unknown quantity of banana beer is also sold directly to bar owners (paragraph 93). The market for banana beer almost certainly exceeds 2.5 million litres per annum.

77. The lack of secondary data does not permit an assessment of the change in the size of the Kampala market over time, and it was not clear from interviews with bar owners and traders, whether the market was increasing or decreasing. An examination of the real banana beer price for Kampala (figure 11) may provide an indication of the possible balance between demand and supply over time.

78. Prices remained roughly constant in real terms from September 1989 to February 1992, but increased over the period February 1992 to December 1992. Whether this sudden increase reflects underlying changes in demand or supply is unclear, although it is supply which is more prone to short term changes and is the more likely cause. Annual rainfall figures¹⁰ indicate that 1992 was an unusually dry year and probably had an adverse impact on

10/ Key Economic Indicators July 1993. Statistics Dept, Ministry of Finance and Economic Planning

beer banana and banana beer production. Assuming this to be the case, and given the production cycle of banana, banana production will take some months to recover. This may explain why banana beer prices have not fallen to their pre-1992 level.

79. Eliminating the potential influence of the weather during 1992, and recognising the stable nature of real prices prior to 1992, suggests that supply has broadly kept pace with demand.

Demand and Consumption

80. As the economy expands it is unclear, in the absence of empirical estimates of the income elasticity of demand, how the market for banana beer will change over time. However, household consumption expenditure data can be used to provide an indication of the consumption characteristics of different groups of households, which in turn can be used to assess the future market for banana beer. Table 7 provides monthly expenditure data for different income/expenditure classes.

Table 7

Household Monthly Consumption Expenditure by Expenditure Groups						
Product	Mthly Exp up to 50,000		Mthly Exp 50,000 up to 100,000		Mthly Exp over 100,000	
	H/hold Exp	%	H/hold Exp	%	H/hold Exp	%
Banana Beer	116	0.39	120	0.18	62	0.04
Beer	156	0.52	683	1.00	9128	5.60

Source: Uganda National Household Budget Survey (1989-90)

81. Household expenditure increases marginally in absolute terms from lower income to middle income expenditure classes, while as a percentage of household consumption expenditure, household consumption falls significantly from low to middle and upper income expenditure groups. This suggests that the income elasticity of demand for banana beer is very low and may even be negative, i.e. an "inferior" good¹¹. This contrasts with bottled beer which shows a marked rise in both absolute expenditure and percentage of household

11/ An inferior product is characterised by a negative income elasticity of demand, i.e. demand for the product falls as incomes rise.

consumption expenditure. It is possible therefore, that as incomes increase, consumers switch from banana beer to bottled beer. The implication for the future urban demand is that demand for banana beer is unlikely to increase significantly as the economy expands. However, this statement should be qualified since the demand for banana beer will depend upon the changes in income for the those lower income groups who currently consume banana beer.

82. In relation to other alcoholic beverages, banana beer appears to be of minor importance when compared to beer, waragi (crude) and malwa. Household consumption expenditure for each of the major beverages is given in Table 8.

Table 8

Average Monthly Household Consumption Expenditure: Kampala City		
	H/hold Exp (shs)	% H/hold Exp
Beer	1512	2.52
Waragi (crude)	518	0.87
Malwa	443	0.74
Waragi (refined)	125	0.21
Banana Beer (Tonto)	110	0.18
Other Alcoholic Beverages	72	0.12

Source: Uganda National Household Budget Survey (1989-90)

83. All of the above drinks can be regarded as potentially competing products, although the extent to which consumers switch between each of the various beverages is unclear. Time series price data, which may provide an indication of the possible relationship between each of the products, could not be obtained during the course of the study. However, price data for the months of October 1992 and May 1993, were available from the Bank of Uganda and are presented in Table 9.

Table 9

Prices of Alcoholic Beverages			
Product	Unit	Oct 92 Price	May 93 Price
Beer	bottle	1300	
Waragi (crude)	litre	2500	3000
Malwa	litre	200	500
Tonto	litre	200	200
Kwete	litre	200	200

Source: Bank of Uganda

84. The significant price differential that exists between banana beer and bottled beer, suggest that it is likely that each product caters to a different market, with the lower income consumer who drinks banana beer unlikely to be in a position to readily switch between the two products. Interviews with bar owners confirmed that it is lower income groups who predominantly consume banana beer. The markets for beer and banana beer may therefore be independent to a large degree.

85. It was reported by bar owners, that higher income consumers do purchase banana beer (often by the jerrycan), but poor hygiene was cited as a major consideration in restricting higher income consumer demand.

86. Malwa (millet based beer), kwete (derived from maize) and binansi (pineapple based drink), which sell for roughly the same price, are more likely to be competing products by catering for the same class of consumer. However, it appears that culture is an important factor determining the consumption habits of the consumer, with each region in Uganda tending to have its own preferred traditional drink. The tendency for many bars to specialise in selling just banana beer may be an indication that customers who consume banana beer do not readily switch and consume alternative beverages. Consumer response to relative price changes may therefore be limited.

Consumer Perceptions

87. The tendency for consumers to stick with their traditional beverage has been noted. Within this market, consumers were also distinguished by the grade of banana beer which they consume. Three grades of banana beer were identified. The first two grades, Muto and Mukulo, were based upon the maturity of the beer, which is largely determined by the age of the beer. Beer up to three days old is usually regarded as Muto (the exact number of days will depend upon the individual brew and storage temperature), while more mature beer of between three days and a week old is labelled Mukulo.

88. It appears that consumers tend to consume a beer at a particular stage of maturity and it was found that many bars specialise, not just in the sale of banana beer, but in the grade of banana beer, reflecting customer preferences.

89. The third grade, known as Kaliga, is the strongest of the grades with the beer made from pure banana juice, no water is added. This beer was not readily available. Kaliga sells for up to two or three times the price of the weaker grades reflecting the greater quantity of banana used in its processing.

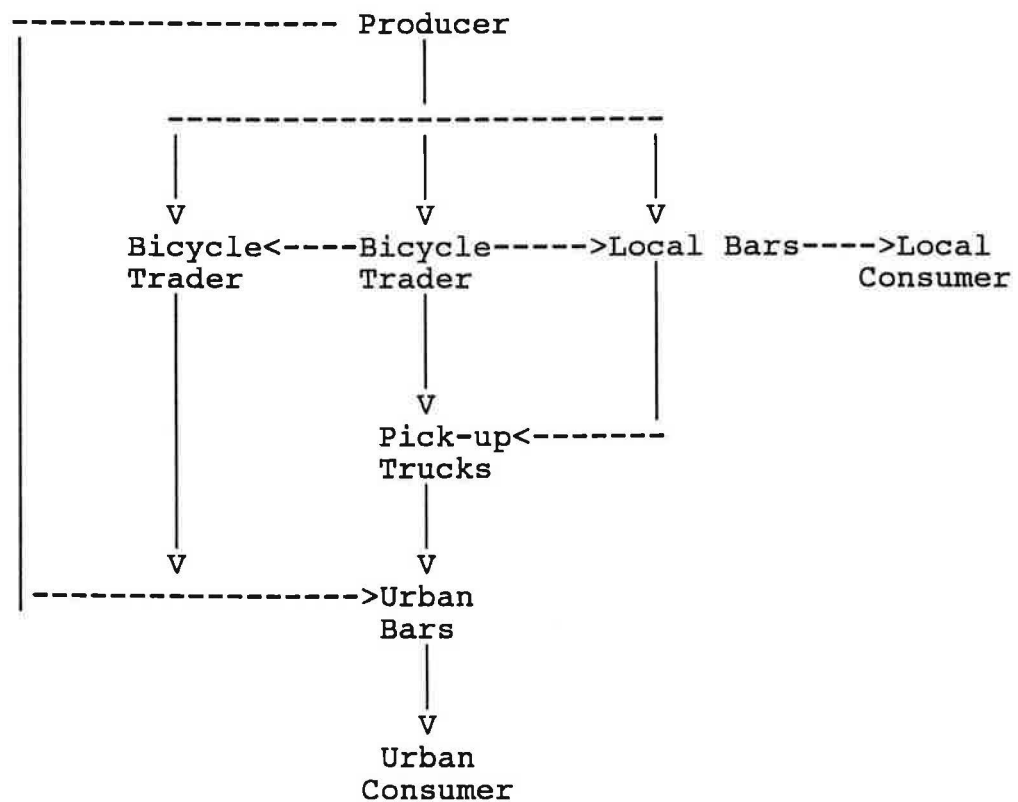
MARKETING CHAINS

Identification

90. The market based approach was particularly relevant in the context of banana beer, where the markets and market traders were not immediately apparent. Banana beer is not sold in the official and unofficial city markets (alcohol is prohibited by law) and is instead sold legally in back street bars. Figure 12 illustrates, by way of a flow diagram, the marketing structure identified.

Figure 12

Structure of the Banana Beer Marketing System



----->Direction of product flow

91. The key players at each stage of the marketing chain will be examined in turn, with the aim of characterising the post-harvest system and identifying the major post-harvest constraints. An assessment of market performance was limited to a view of the degree of competition at each level of the marketing chain and the scale of post-harvest losses. The absence of time series price data for the major districts supplying Kampala, prevented an assessment of market performance by examining gross margins or the degree of market integration.

Urban Bars

92. Retail outlets for banana beer consist of back street bars found in the poorer areas of Kampala, often in close proximity to the city markets. Bars selling banana beer were identified and visited in areas adjoining Ntete and Bwaise markets.

93. Bar owners reported a number of possible options when purchasing banana beer. They may purchase from pick-up traders, bicycle traders and farmers who come to the bars direct, or they can go to the wholesale collection sites at Ndeeba and Kiswenyi. Many bar owners reported dealing with particular traders on a regular basis, the major consideration being an assured quality of banana beer.

94. Traders taste the banana beer before purchasing and avoid beer with the following characteristics: watery beer, not only disliked by consumers but also tends to have a shorter shelf life; beer in which inadequate levels of sorghum have been used in the processing, which impairs flavour and also reduces shelf life.

95. In recognition of the limited shelf life of banana beer (it keeps for up to a week), bar traders were observed to buy a small number of jerry-cans at any one time, i.e. a quantity of beer that they can reasonably expect to sell before the beer starts to spoil. In this manner, physical wastage is kept to a minimum. Beer which exceeds its shelf-life is thrown away (spoiled beer is not considered suitable for turning into waragi, while it is not common for bar traders to have the necessary facilities or experience to manufacture waragi).

96. A number of traders complained that excess sediment (sorghum) in each jerrycan can effectively reduce the quantity of beer which is available for sale. However, it was also emphasised that the sediment fulfils an important function. The sediment allows for continued fermentation, contributing to the flavour of the beer and extended shelf-life.

Pick-up Traders

97. It would appear that the number of pick-up traders who operate in the market is limited. The main wholesale

markets, Ndeeba and Kiswenyi, reported that five and two pick-ups respectively arrive each day. For those producing areas too distant for bicycle traders to operate, there may be a potential for pick-up traders to exploit this market position. However, at the urban market, competition from bicycle traders ensures a competitive environment.

Bicycle Traders

98. Bicycle traders are an important link in the marketing chain, and in many instances offer the sole link between the farmer and urban market. Many bar owners preferred using the bicycle traders since the beer is transported directly to their bar. Pick-up traders often sell at the wholesale collection points where bar owners are left with the responsibility and expense of transporting the beer to their bar.

Producers

99. Interviews with bar owners, bicycle and pick-up traders, indicated that districts within close proximity of Kampala, namely Mpigi, Luwero, Mukono and Mubende districts were the major sources of supply for the Kampala market. Given the limited time available, two villages in Luwero and Mpigi districts were visited: Wobulenzi and Waluleta in Luwero district; and Kawunda and Kakerenge in Mpigi district.

100. A detailed assessment of the farming system and post-harvest constraints faced by farmers was not possible in the limited time available. Readers are referred to the recently completed diagnostic survey undertaken as part of the National Banana Programme (with the assistance of Dr J Aked of NRI), which specifically examined post-harvest constraints faced by the farmer. (A full report will be available by April/May 1994.

101. In each of the villages visited, banana beer alongside coffee were reported as the major cash crops, with the importance of banana beer as a year round income source also emphasised compared with the seasonal nature of coffee.

102. A number of marketing systems were identified at the farm level, with farmers selling beer to bicycle traders, pick-up traders or taking the beer to Kampala themselves by paying a fee to the owner of a pick-up. However, marketing opportunities were reported as limited in three of the four villages visited, with local bars often reported as the only market outlets. Many farmers reported that they have an informal arrangement with neighbouring farmers to stagger production of beer so each can be assured of selling their beer to the local bars.

103. Collection points where bicycle traders and farmers sell to pick-up traders, or where pick-ups can be hired by farmers or traders on a fee per jerrycan basis, were identified, although they did not appear to be widespread. For those villages over 20 miles from Kampala (bicycle traders were reported as covering distances of up to 20 miles from Kampala), the absence of collection points or pick-ups going direct to the farms will severely restrict the marketing opportunities of the farmer.

Post-harvest Losses

104. By buying a quantity of beer that they can reasonably be sure of selling before the product spoils, urban bar owners keep post-harvest losses to a minimum. However, most bar owners admitted to disposing of banana beer which had spoiled, although the extent of the losses was unclear. It appears that bar owners do not reduce the sale price of beer which is nearing the end of its shelf life as a means of encouraging a sale.

105. Post-harvest losses at the pick-up and bicycle trader level are likely to be small, with both types of trader aiming to sell the beer within a short period of time.

106. The potential problem of having a limited number of market outlets was reported by farmers and instances of not being able to find a market for the beer were reported. Physical wastage however, is kept to a minimum by turning beer into waragi.

Market Potential for Novel Products

107. The fruit juice market appears to be an expanding market, with imports of fruit juice (orange, grapefruit, pineapple, tomato, passionfruit and mixtures) increasing significantly in recent years. Domestic production of fruit juice based drinks (Creps) was also reported to have increased, with Masaka Food Processors Ltd (MFP) unable to meet present market demand. Table 10 presents import figures for the years 1990 to 1992.

Table 10

Fruit Juice Imports	
Year	Imports (kg)
1990	113,695
1991	172,639
1992	221,066

Source: Ministry of Finance and Economic Planning

108. In the context of possible banana products, banana juice was identified as a popular and widely consumed drink in the rural areas. However, banana juice did not appear to be widely available in the Kampala market. The reason for this appears to be the highly perishable nature of banana juice (keeps for up to a day), rather than fundamentally different consumer tastes on the part of the urban consumer. Indeed, many urban consumers indicated a preference for banana juice provided hygiene standards could be guaranteed.

CONCLUSIONS AND RECOMMENDATIONS

109. Taken overall, banana beer appears to be a minor beverage in terms of household consumption expenditure. Household expenditure data suggest that the market for banana beer is unlikely to increase significantly as the economy expands. This contrasts with other beverages such as industrially produced bottled beer, where consumption expenditure in both absolute and percentage terms increases significantly from low to middle and upper income households. Poor hygiene was cited by wealthier consumers as a major consideration in not purchasing and consuming banana beer. Whether a market exists for better quality banana beer is not clear. Among the middle and upper income consumers, tastes for bottled beer are well established, while any improved banana beer product would have to overcome the tendency of banana beer to be viewed as a "poor mans beverage". For most banana beer consumers (low income groups), banana beer is attractive as a cheap alcoholic beverage. To the extent that an improved banana beer would be more expensive, an improved quality product is unlikely to appear attractive. Any technical interventions aimed at improving beer quality must have little or no impact on price if they are to meet with success.

110. A number of quality issues associated with the processing of banana beer were raised. The quantity of water and sorghum used in processing appear to be of fundamental importance in determining the quality of the product, in terms of both taste and shelf-life. Beer which is too watery or has not fermented properly is rejected by both trader and consumer, and will constitute an economic loss to the farmer.

111. Losses at the retail level (bars) were reported, but are unlikely to be significant. Once again, the daily flow of beer to Kampala and the competitive nature of the urban market allow bar owners to purchase and retail beer as and when they require.

112. Banana juice was not widely available in the Kampala market, although many of the consumers interviewed indicated a liking and preference for the product. The poor shelf life and questionable hygiene standards were cited as the fundamental constraints restricting the

widespread sale of banana juice. Given the expanding juice market in general, both for high quality imported fruit juice and the domestically produced Creps (a still pineapple beverage), and consumer preference and acceptance of banana juice, a potential market would appear to exist for banana juice. A product on a par with creps would appear to offer the greatest scope, both technically and economically, with the bulk of consumers purchasing crepes and sodas rather than the highly priced imported juice. Any proposed technical interventions must therefore produce a product which can compete on price terms with the Creps product.

IV. URBAN BANANA WASTES

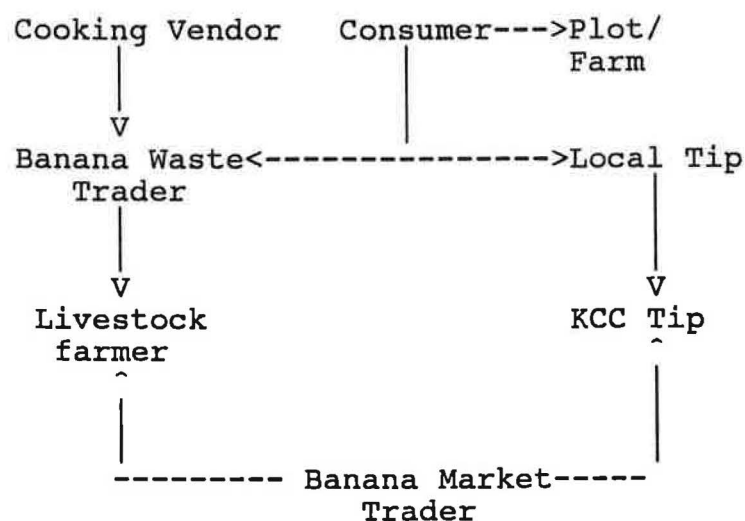
113. A study of banana waste utilisation was conducted to document the scale and use of banana wastes in urban areas (Kampala).

Distribution Channels

114. A number of distribution channels for banana waste products were identified in Kampala and are illustrated in figure 13.

Figure 13

Banana Waste Distribution Channels



-----> Direction of product flow

115. When discussing banana waste, reference is made to the peelings, discarded bananas and the stem of the bunch. It is important to distinguish between each of these products since the distribution channels identified in figure 13 do not apply to each of the products.

116. The formal method of disposing of waste in Kampala, including banana waste, is for the waste to be collected and disposed of by the city council at the designated KCC refuge dumps. This waste is mixed in the sense of comprising of both organic and inorganic waste and is currently not utilised by the city council. However, an organised, if informal system of disposing of banana peelings, was identified at the city markets involving specialised banana peeling traders.

Banana Peeling Traders

117. Traders in banana peel (men and children), cater for the demand from livestock farmers by providing a sorting and collection service. The major source of banana peelings is from the cooking areas which are found at the major city markets. Banana peels are collected from the cooking stalls usually at no charge to the banana peel trader since they are regarded as providing a service. The peels are normally transported by wheelbarrow to an outer area of the market where potential buyers, livestock farmers, can have easy and ready access.

118. Banana peels are also collected from households, although the time and effort of collecting banana peels from individual households, restrict the importance of this potential source of supply. Households also utilise banana peels for their own purposes, whether for livestock feed or as a source of compost for their plots and farms.

119. Banana peels and other suitable fodder are not collected in any great quantities from the city refuse dumps since the dumps contain mixed waste, much of which is not suitable for livestock feed.

120. Given the informal nature of the market, it was not possible to provide a comprehensive quantitative assessment of the waste material. However, an estimate of the quantity of banana peelings which are collected for sales purposes at Owina market and at Sapoba was made. It was estimated that between 2.5 and 3 MT of banana peels are collected per day at Owina market and 1.5 MT at Sapoba. Owina is the largest of the markets in Kampala and hence the figure of 3MT per day can be regarded as the upper limit of banana peelings which are collected at any one market.

121. The demand for banana peelings was reported as seasonal, with the demand for peelings highest during the dry season when fodder is in short supply in the surrounding areas. Traders reported livestock farmers coming from Mukuno, Mpigi and Luwero districts. Unfortunately it was not possible to interview a farmer to obtain a farmer perspective on the banana waste market.

122. Banana peels were sold by the heap and can be kept for up to three days before the peels become too dry for feed purposes and are burnt. The selling price reflects not only the size of the heap but the freshness of the banana peelings.

Banana Market Traders

123. Banana traders were also reported as selling peelings to farmers. However, this is not a widespread practice and is restricted to those banana traders who

peel banana for sale to restaurants. The peelings are collected and sold, often by order, to farmers.

CONCLUSIONS AND RECOMMENDATIONS

124. Waste material collected and disposed of by the city council is currently not utilised. The mixed nature of the waste prevents any large scale use of this material for livestock feed purposes. A pre-requisite for any proposed utilisation of this waste, is therefore the sorting of the waste.

125. An analysis of the institutional and financial implications of sorting and utilising this waste material for livestock feed purposes, was not possible during the confines of the study. However, the potential size of the market for livestock feed would need to be established before any potential utilisation proposals are made, while the seasonal nature of demand for feed may well be an important and limiting factor for any proposed utilisation of waste for livestock feed purposes.

126. An informal system for collecting and selling banana peels to livestock farmers was identified. The fact that these traders collect banana waste material from the cooking areas of the markets, where the time and cost of collecting, sorting and transporting the waste material are minimal, and not from the skips in the markets (mixed material) or from the city dumps (mixed material), may be indicative that the costs associated with sorting and collecting mixed material are prohibitive. Alternatively, the demand for livestock feed may be insufficient to make this a worthwhile economic activity.

Figure 1

Real Price of Banana

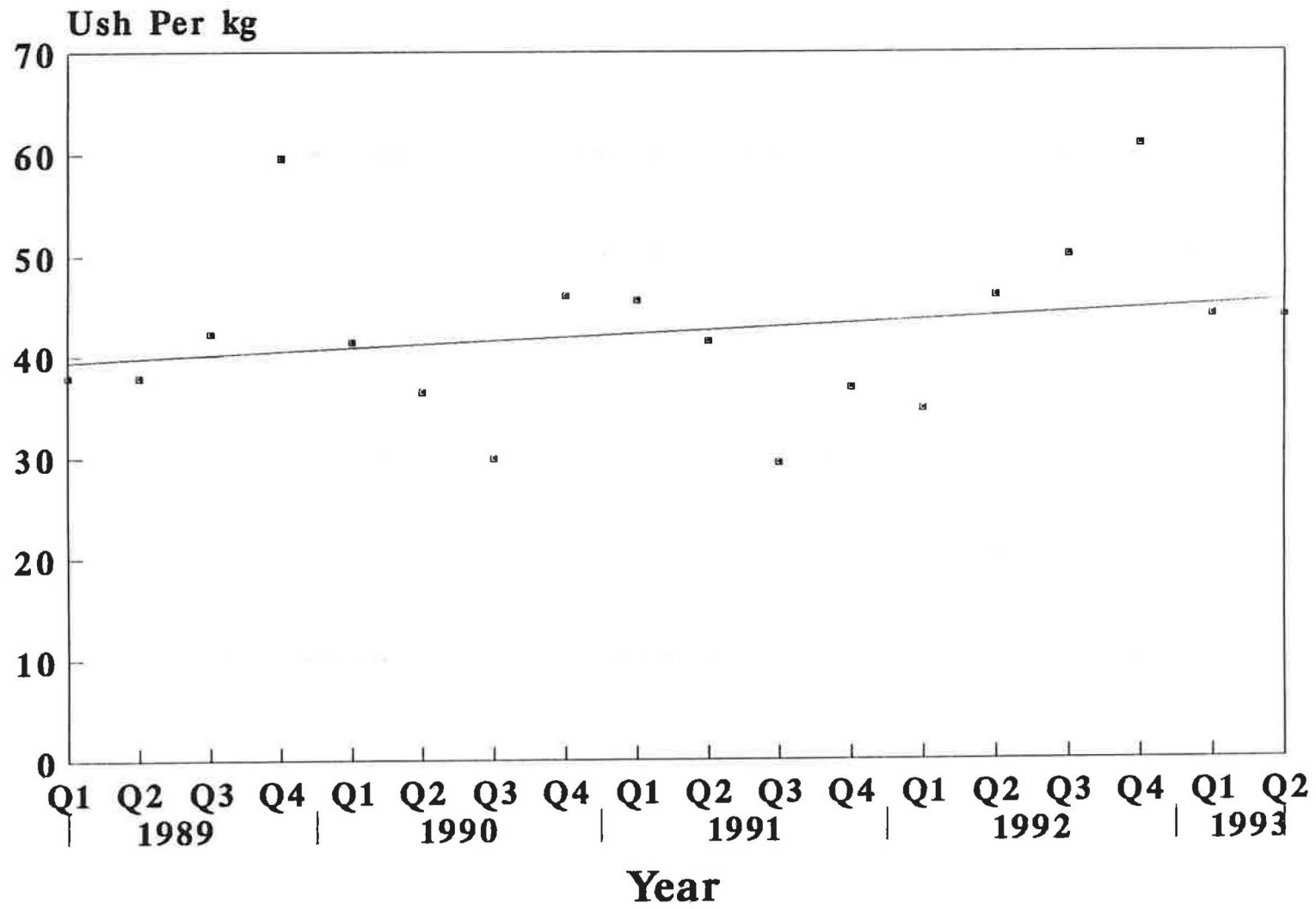


Figure 2 Price of Maize Meal Relative to Banana

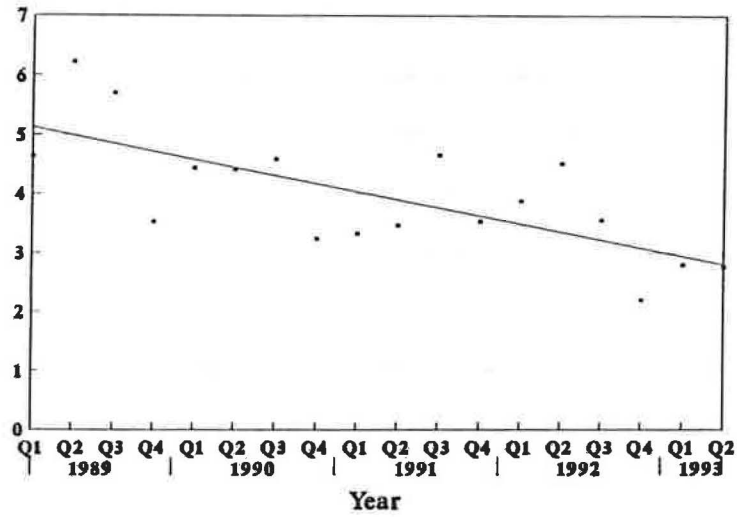


Figure 3 Price of Rice relative to Banana

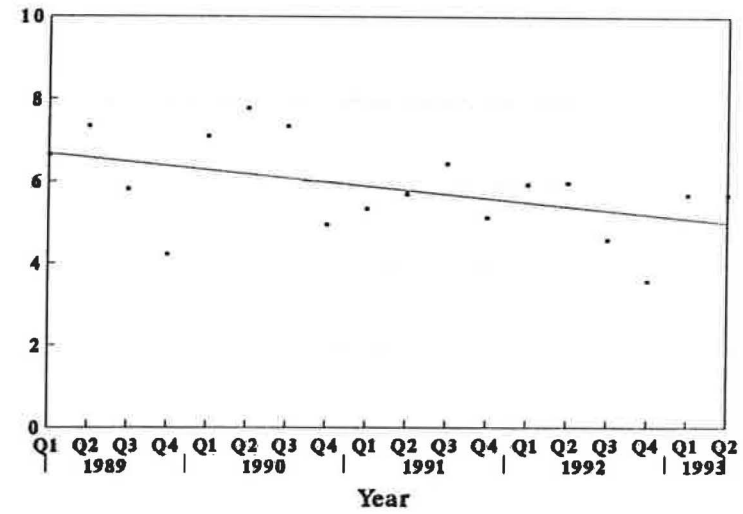


Figure 4 Price of Sweet Potato relative to Banana

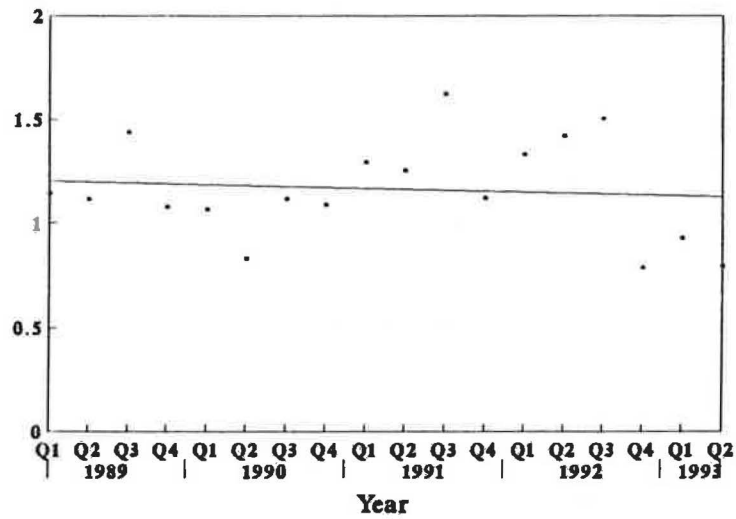
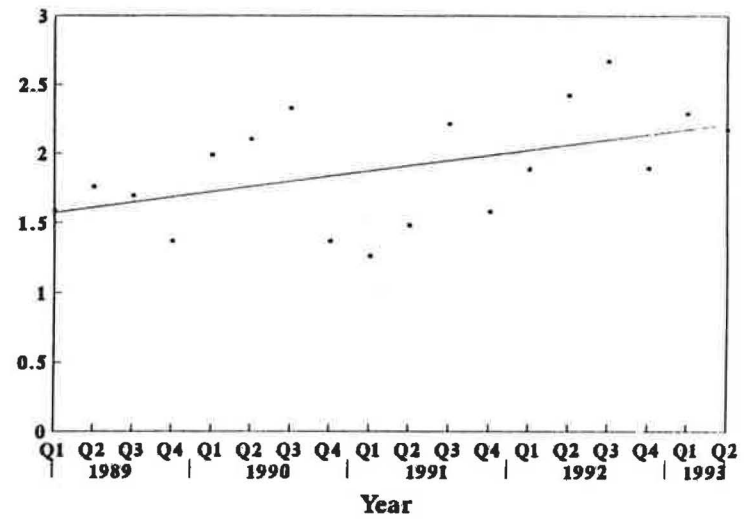
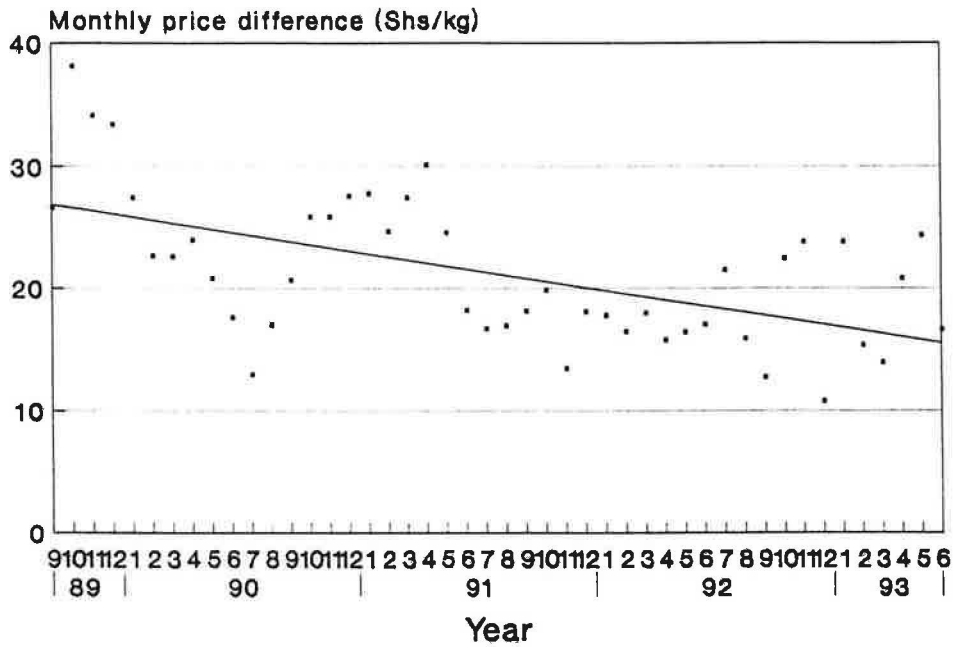


Figure 5 Price of Dry Cassava relative to Banana

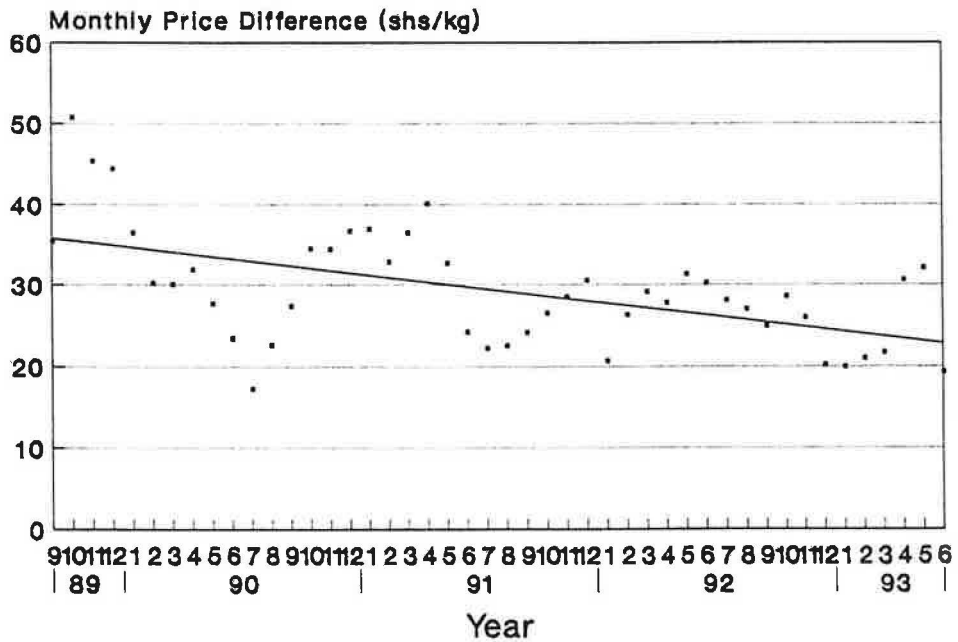


**Figure 7 Producer-Urban Consumer Gross Margins
(Masaka and Kampala)**



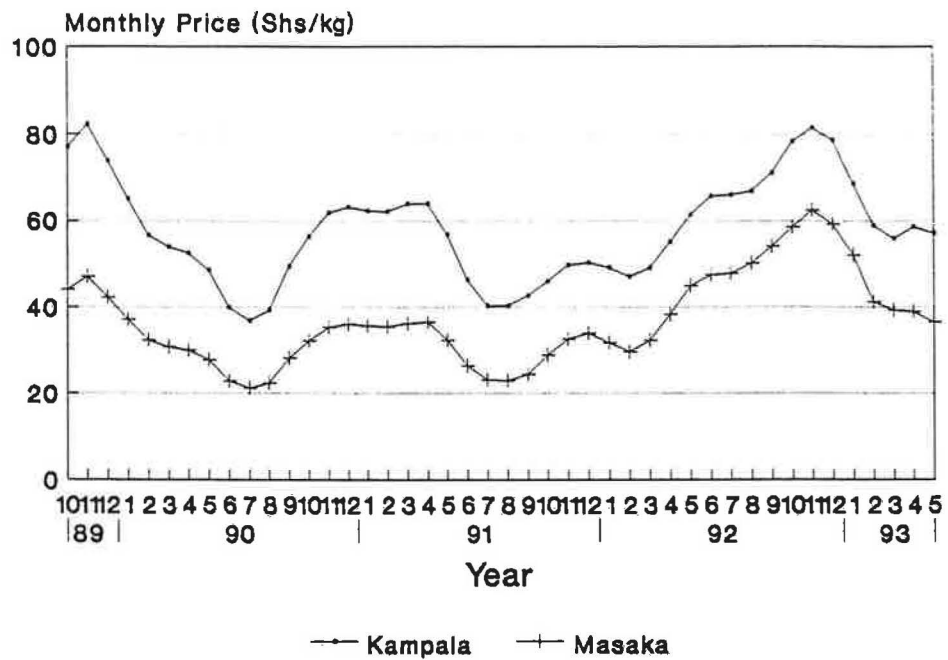
Deflated Margins

**Figure 8 Producer-Urban Consumer Gross Margins
(Masaka and Kampala)**



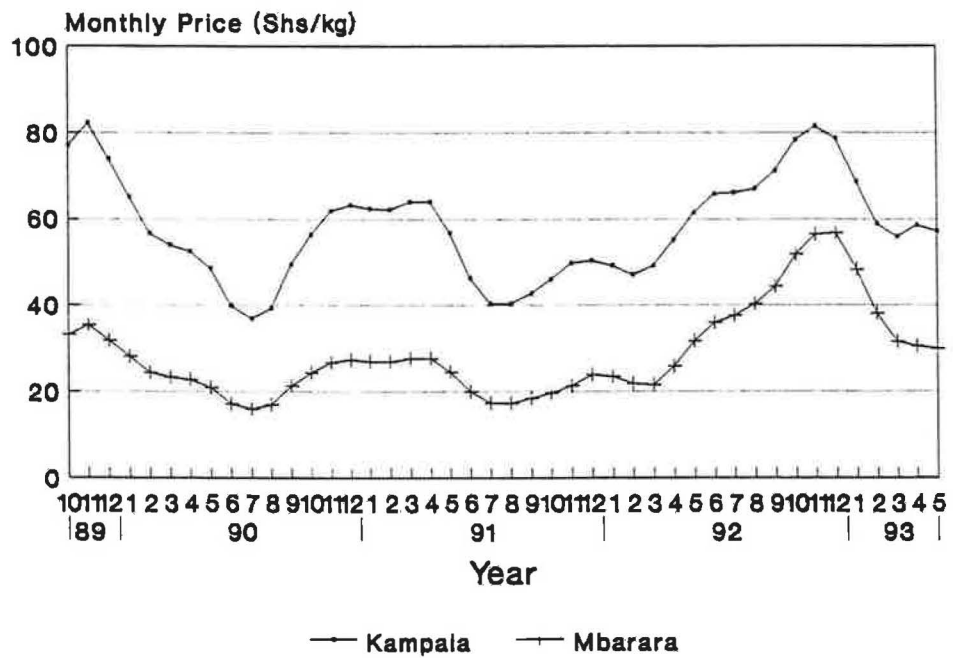
Deflated Margins

Figure 9 Kampala and Masaka Banana Prices



(Price: 3 month moving average)

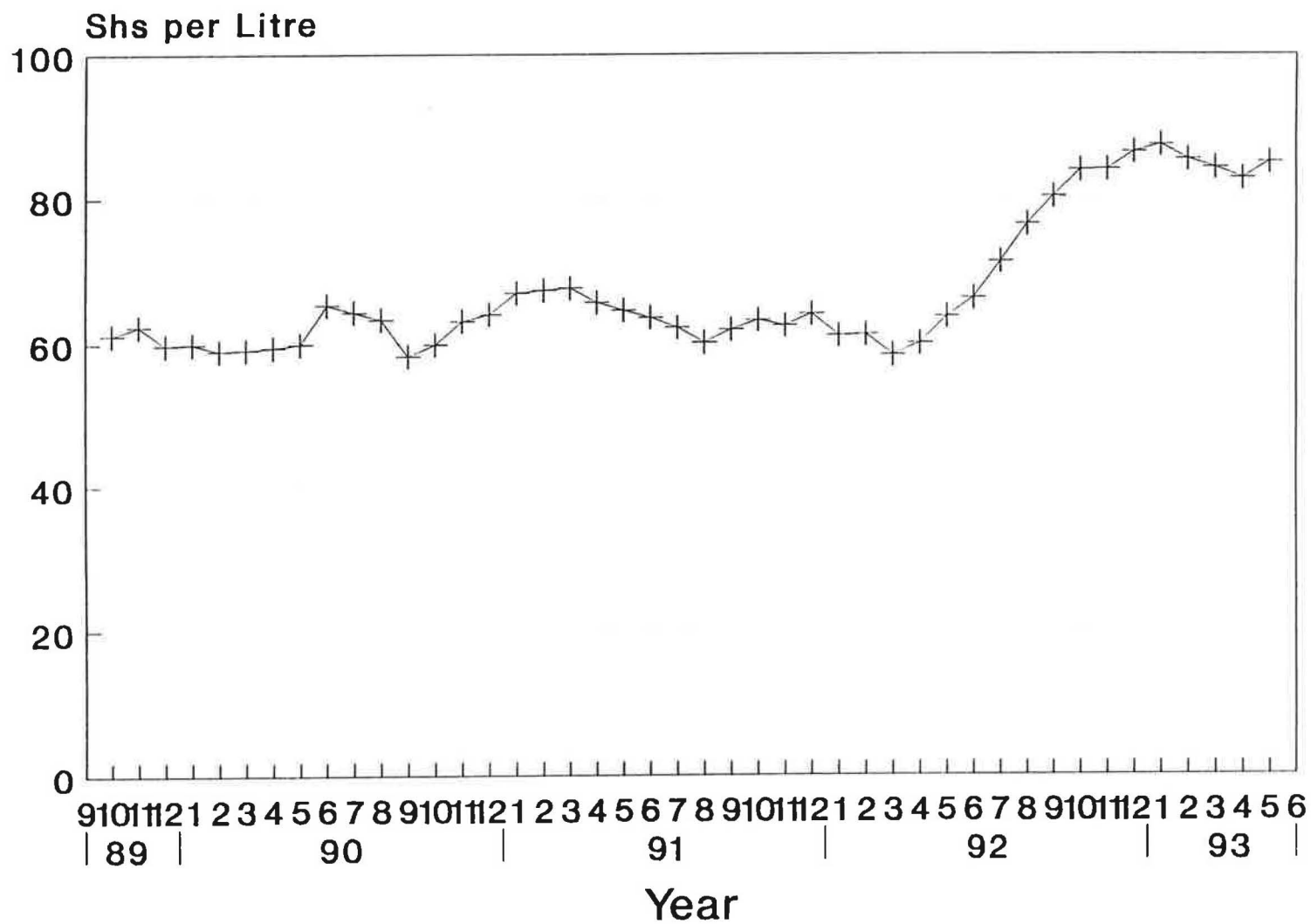
Figure 10 Kampala and Mbarara Banana Prices



(Price: 3 month moving average)

Figure 11

Real price of Banana Beer



3 month moving average

Appendix 1

Contact List

Mr D Kyerangi	Market Information Officer, Ministry of Trade and Industry, Kampala
Mr Hodskinson	Ministry of Finance and Economic Planning, Statistics Dept, Entebbe
Mr Nsibuza	Ministry of Finance and Economic Planning, Entebbe
Mr Okwakol	Planning Dept, Ministry of Agriculture, Entebbe
Dr Karomura	Coordinator National Banana Programme, Kawanda Research Station
Dr Shetty	Agricultural Economist, Bank of Uganda, Kampala
Mr E Mwesigwa	Agricultural Secretariat, Bank of Uganda, Kampala
Mr Opdot	Customer Services Dept, Uganda Railways, Kampala
Mr S Charles	Operations Manager, Uganda Cooperative Transport Union (UCTU), Kampala
Mr Kamoga	Chief Market Administrator, Kampala City Council
Mr Mwesigye	Deputy Town Clerk, Kampala City Council
Mr Kahamba	Senior Market Administrator, Owina Market, Kampala
Mr Tushabe	Assistant Market Administrator, Nakawa Market, Kampala
Mr A Waswa	Senior Assistant Agricultural Officer, Masaka
Mr Himbisa	District Agricultural Officer, Mbarara

Appendix 2

Estimated Size of the Banana Market in Kampala					
H/hold Monthly Exp (shs)	Retail Price (shs/kg)	H/hold Monthly Cons (kg)	H/hold Cons per yr (MT)	No of h/holds	Size of market (MT)
4121*	75.34**	54.70	0.66	182,439***	120,410
<p>* Uganda National Household Budget Survey (1989-90)</p> <p>** Ministry of Finance and Economic Planning, average retail price for the period Sept 1989 to March 1990. Data for March to August 1989 was not available to coincide exactly with the period when the household survey was undertaken.</p> <p>*** 1991 Population and Housing Census</p>					

Appendix 3

Household Monthly Consumption Expenditure by Expenditure Groups

Food	Mthly Exp up to 50,000		Mthly Exp 50,000 up to 100,000		Mthly Exp over 100,000	
	H/hold Exp	%	H/hold Exp	%	H/hold Exp	%
Banana	2217	7.40	5217	7.60	9348	5.73
Maize	1055	3.52	1895	2.76	3277	2.01
Cassava	814	2.72	835	1.22	1545	0.95
Sweet Potato	699	2.33	1489	2.17	2715	1.67
Rice	634	2.12	1241	1.81	3133	1.92
Irish Potato	163	0.54	336	0.49	949	0.53
Millet & Sorghum	94	0.31	181	0.26	387	0.24
Other (yams & tubers)	61	0.21	62	0.09	39	0.02

Source: Uganda National Household Budget Survey (1989-90)

Appendix 4

Production of Banana by District	
District	Production (MT)
Apac	2,275
Bundibugyo	12,113
Bushenyi	991,738
Hoima	26,263
Iganga	60,577
Jinja	24,619
Kabale	63,810
Kabarole	171,360
Kamuli	32,634
Kapchorwa	27,235
Kasese	43,506
Lira	338
Luwero	51,677
Masaka	473,482
Masindi	7,804
Mbale	358,150
Mbarara	1,072,111
Mpigi	115,867
Mubende	491,022
Mukono	168,546
Nebbi	8,459
Rakai	334,477
Rukunguri	100,730
Tororo	78,413
Total	4,717,186

Source: Agricultural Census 1990

Appendix 5

Estimated Size of Banana Beer Market in Kampala					
H/hold Monthly Exp (shs)	Retail Price (shs/ litre)	H/hold Monthly Cons (litres)	H/hold Cons per yr (litres)	No of h/holds	Size of market (litres)
110*	133.7**	0.83	9.96	182,439***	1,817,092
<p>* Uganda National Household Budget Survey (1989-90)</p> <p>** Ministry of Finance and Economic Planning, average retail price for the period Sept 1989 to March 1990. Data for March to August 1989 was not available to coincide exactly with the period when the household survey was undertaken.</p> <p>*** 1991 Population and Housing Census</p>					