Uganda Journal of Agricultural Sciences, 2004, 9, 64-76
ISSN 1026-0919

Identifying market opportunities for Smallholder farmers in Uganda

R. Nyapendi, E. Kaganzi[1], R., Best[1] and Shaun Ferris[1]

International Institute of Tropical Agriculture, P. O. Box 7878, Kampala, Uganda
[1]International Center for Tropical Agriculture, P.O. Box 6247, Kampala, Uganda

Abstract

Kampala has a population of over 1.2 million inhabitants that is growing at a rate of over 3.9% per year. The growth of the city represents a large expansion in markets for agricultural products, and offers a strong demand for a wide range of food products. This paper reports the findings of a study to assess the market demand in Kampala for the agricultural products that were prioritised by farmer organisations in the National Agricultural Advisory Service, NAADS, trailblazing sub-counties, and identify other potential crop and livestock products that are in high demand or scarce supply and that could potentially be produced by Ugandan farmers. The study includes: a) livestock products, b) roots, tubers and plantains, c) fruits and vegetables, d) legumes and oil crops, e) cereals, and f) high value products. Information on the purchase conditions for the range of products identified, in produce markets, local stores and kiosks, butchers, small and large supermarkets, and food-processing industries was collected and analysed. The study shows that there exists a demand in Kampala for the majority of the products prioritized by NAADS farmers, and that there is demand for a number of additional products that could be produced by small farmers. While produce markets continue to constitute the highest volume demand for agricultural products, local supermarkets, small shops and kiosks report higher growth in demand across all food categories studied. The growth of the large, multi-national supermarket sector constitutes a challenge to the smallholder farmer. These outlets offer higher prices but have more exacting purchase conditions, especially in terms of quality and frequency of delivery. The paper concludes that to meet these emerging food demands requires not only effective delivery of support services but also that agricultural research organizations provide market and technical information on which small holder farmers and their service providers can make appropriate production decisions.

Key words: Kampala, marketing agricultural produce, market demand, purchase conditions

Introduction

Kampala, the capital city of Uganda covers an area of 197 km^2 and has a population of 1.2 million inhabitants with a growth rate of 3.9 percent per year. Kampala in the 21st century is the showcase of Uganda's economic, political and social transformation. It is the most rapidly growing market centre and has demand for products in all segments. The significance of Kampala market is its rapid population growth, its central location in the country and relatively well-developed market infrastructure.

One of the pillars of the Ugandan Government's Poverty Eradication Action Plan (PEAP) is the Plan for Modernization of Agriculture (PMA). The National Agricultural Advisory Service (NAADS) was created under the PMA to undertake the shift from subsistence farming to commercial agriculture, as a means of making a contribution to poverty eradication (Government of Uganda, 2000). The NAADS framework aims at increasing farm productivity and profitability. However, increasing productivity and profitability is highly dependent on the availability of market opportunities for farmers within and outside the country. Through an enterprise selection process with farmers' organisations in the NAADS 'trailblazing' sub-counties, a range of crop and livestock products were identified and prioritised by farmers.

The research described in this paper reports the findings of a study to assess the market demand in Kampala for the agricultural products that were prioritised by the farmer organisations during the NAADS enterprise selection process. It also identifies other potential crop and livestock products that are in high demand or scarce supply and that could potentially be produced by Ugandan farmers. For the range of products identified, the study collected and analysed information on the purchase conditions in produce markets, local stores and kiosks, butchers, small and large supermarkets, food processing industries, wholesale traders and other market outlets. Information about market demand for food products in Kampala is largely anecdotal, with information limited to sub-sector specific studies. One

source of relevant information is Maxwell's study on urban agriculture in Kampala (Maxwell, 1995). The information generated will provide a mechanism through which NAADS can link potential supply with existing and potential demand, as indicated by the largest market outlets in Uganda. This should in turn contribute to increased agricultural productivity and profitability through defining demand for farmers by identifying market opportunities.

Methods and techniques

The market opportunity identification methodology employed in the study was adapted from the methodology described by Ostertag (1999). It involved the following steps:

Step. Prioritisation of enterprises
Based on the information gathered through the enterprise selection process in the NAADS trailblazing districts, there were specific enterprises that were of interest to NAADS and their clients; these are shown in Table 1.

Step 2. Defining objectives and strategies for the market survey
The objectives of the market survey were specified as follows:

1. To identify market opportunities in Kampala for agricultural products that were prioritised by farmers, and
2. To capture information on purchasing conditions for the range of products identified.

The identification of the market research strategies took into account and sought to identify products that would contribute toward achieving the overall goal of the PMA. The strategies were to identify market opportunities in Kampala for existing products and also markets for other products for which there is a high demand or scarce supply. The survey strategies were defined using Ansoff product-market growth matrix (Kotler, 1999) as a tool for planning the survey in terms of growth alternatives and in consultation with NAADS Secretariat personnel and these included:

1. Products in high demand
2. Products in scarce supply
3. Demand for products of interest to NAADS farmer organisations

Step 3: Developing the research plan and designing tools
A matrix checklist of the above market research strategies against the different categories of market outlets from which relevant primary information could be obtained, was developed, see Table 2. For each category of market outlet an inventory of specific businesses from which to collect information was made. Out of these an appropriate sample was taken randomly to provide an estimate of demand and purchasing conditions for the products of interest in each market category. The market study did not focus on consumers, but rather on market channels and agro-industry, and therefore the sample was considered to cover a relatively large proportion of the total population. Where available, secondary sources of market information were consulted. For primary data collection, questionnaires for each of the different market categories of respondents were designed, tested and adjusted.

Step 4: Collection of information
The survey was conducted semi-structured questionnaires to obtain the information required. The methods of contact with traders were by face-to-face discussions by individual enumerators and occasionally by telephone interviews to follow-up on information received. Where appropriate, formal letters requesting interviews were sent, in other cases contact would be made by telephone, or by personal visits to arrange interviews, or a combination of these methods. Secondary information was collected through literature searches and visits to the sources identified as relevant by key informants.

Step 5: Data analysis
After finishing the fieldwork and having collected primary and secondary data, the information was analysed. Analysis of secondary data was undertaken manually. Primary data was entered into an Microsoft Access data base and then transferred to Microsoft Excel for cleaning. Analysis was undertaken using the Stata computer package. Processing and analysis of data was undertaken simultaneously, followed by synthesis of the information obtained and subsequent selection of the most pertinent information for presentation in the present paper. This paper does not attempt to present the totality of the data collected in the survey. The results are illustrative of the type of information that is available and are presented according to the market research strategies mentioned above.

Results and discussion

Products in high demand and scarce supply
Tables 3 and 4 show products in high demand and scarce supply respectively in different market outlets in Kampala. A total of over 60 products were identified as either being in high demand or scarce supply. All of the products of interest to NAADS trailblazing farmers (Table 1) are in high demand except soybean, pigeon pea, sorghum and coffee. Similarly, all the NAADS farmers' products are in scarce supply in one or more of the market outlets surveyed, except for sunflower, pigeon pea, sorghum and coffee. . This information suggests that the demand for pigeon pea, sorghum and coffee in Kampala is not assured and that farmers producing these crops will need to look for other potential markets. Opportunities for marketing in Kampala do however exist for all the other crops and livestock products prioritised by NAADS farmers.

Table 1. Commodities prioritised from NAADS sub-county evaluation

Commodity group	Commodities
Livestock	Poultry, beef, pigs, goats, dairy, fish
Roots, tubers, bananas	Matooke, Irish potato, sweet potato
Fruits and vegetables	Pineapple, passion fruit, tree fruits (orange, mango, avocado, sweet banana)
Legumes and oil crops	Groundnuts, beans, soybean, sunflower, pigeon peas
Cereals	Maize, millet, sorghum, rice
High value and coffee	Honey, vanilla, mushrooms, coffee

Table 2. Research strategies and their corresponding information sources Shaded boxes indicate principal Information sources for each market research strategy

Sources of information	Market Research Strategies							
			Products of interest to NAADS Farmer organisations					
	Products in high demand	Products in scarce supply	Livestock products	Roots, tubers and plantains	Fruit and vegetables	Legumes and oil crops	Cereals	High value products
Produce markets	■	■	■	■	■	■	■	
Meat roasters and local butcheries	■	■	■					
Small supermarkets, shops and kiosks	■	■	■	■	■	■	■	■
Large supermarkets	■	■	■	■	■	■	■	■
Hotels and restaurants	■	■	■		■			■
Street vendors	■	■	■		■			
Institutions	■	■	■	■	■	■	■	
Agri-food processors	■	■	■	■	■	■	■	■

Beyond the products prioritised by the NAADS farmers in the trailblazing sub-counties, additional products that are either in high demand or in scarce supply in Kampala markets are shown in Table 5 and these could provide farmers with alternative production opportunities. Those products that are both in high demand and scarce supply, whether they were prioritised by NAADS farmers or not, are the most promising for Ugandan farmers provided that there exist appropriate agro-ecological, service support and infrastructure for their production. With the exception of perhaps grapes and apples, all other products mentioned by traders are currently produced in Uganda.

Table 6 lists the reasons given by traders for the scarcity of products in the market. The most prominent are: low production, supply fluctuation due to seasonality, inconsistent supply, and poor infrastructure to remote areas. For certain products such as pork, broilers, milk and groundnuts, high demand is seen as a major factor affecting supply. Seasonality, especially for roots, tubers and plantains, and fruits and vegetables, but also for the cereals and legumes, is a major factor influencing scarcity. Different solutions are required for each of these limitations. For example, increased production and productivity, associated with farmer organisation can help meet demand and reduce prices; irrigation for vegetables and better planning and perhaps even coordination of production among growing areas could reduce supply fluctuations due to seasonality; improved road infrastructure that provides access to remote areas would also increase supply and reduce transport costs. In terms of growth in demand, Table 7 shows the trends over the past two years for major food categories. For those products, for which 50 per cent or more of traders report a high demand growth, milk products top the list across all outlets reporting sales. Fruits and vegetables also show strong demand growth across outlets, followed by legumes and oil crops, and high value products. Comparing across market outlet, it is interesting to note strong demand growth in virtually all product categories for the category of small supermarkets, shops and kiosks and also for agri-food processors.

Table 3. Products in high demand in Kampala by market outlet and product category Numbers in parenthesis after a product denotes the number of traders responding

Market outlet	Livestock	Roots, tubers and plantains	Fruits and vegetables	Legumes and oil crops	Cereals	High value products
Produce markets and specialised markets for particular products (total n: 44)	Beef (5), Local chicken (3), Broilers (2), Goat (2), Pork (2), Off layers (1), Milk (1), Fish (2)	Matooke (7), Irish potato (5), Sweet potato (3), Cassava (1).	Pineapple (6), S. banana (5), Passion (2), Mango (2), W. melon (2), Pawpaw (2) Tomato (6), Onions (2), Leafy vegetables (3).	Beans (4), Cowpea (3), Groundnuts (2).	Maize (1).	Ginger (1) Chilli (1) Mushroom (1) Vanilla (1).
Local supermarkets, shops and kiosks (total n: 32)	Beef (1), Pork (1), Goat (1), Milk (11), Eggs (6)	Irish potato (3), Sweet potato (5),	Pineapple (7), Watermelon (3), Passion fruit (5), Mango (1), Sweet banana (5), Apples (3), Orange (1), Pawpaw (2), Avocado (1), Tomato (6), Onion (2), Green pepper (1), Carrot (1), Lettuce (1)	Beans (7), Groundnuts (3), Peas (2)	Maize (9), Rice (4), Wheat (1)	Mushrooms (4), Chilli (1), Honey (1), Roses (1), Hides and skins (1)
Large supermarkets (total n: 2)	Milk (2), Broiler (1), Eggs (2)		Pineapple (1), Sweet bananas (1), Apples (1), Oranges (1), Avocado (1), Grapes (1), Watermelon (1), Sweet cane (2) Leafy vegetables (1), Baby courgettes (1), Tomato (1), Carrot (1), Lettuce (1)			Fresh mushrooms (1)
Meat roasters and local butcheries (total n: 28)	Beef (7), Pork (17), Broilers (2), Goat (5)					
Street vendors (total n: 5)	Chicken (1)		Pineapple (1), Passion fruit (3), Orange (4), Mango (1) Tomatoes (2), Carrots (1)	Beans (1)		
Hotels and restaurants (total n: 19)	Chicken (12), Beef (12, Goat (3), Pork (2), Milk (1), Eggs (1), Fish (5)	Matooke (8), SweetPotato (3), Irish potato (9)	Passion fruit (1), Pineapple (1) Cucumber (1), Lettuce (1), Carrots (2), Tomato (3), Cabbage (1), Onion (3)	Beans (2), Peas (2)	Maize (3), Rice (5)	Mushrooms (1)
Institutions (total n: 5)	Beef (2)	Matooke (1), Irish potato (1)	Onions (1), Tomato (1)	Beans (5)	Rice (5), Maize (5),	
Agro-processors and specialised butcheries (total n: 20)	Beef (4), Broiler (2) Pork (1), Milk (1)	Irish potato (1)	Pineapple (2), Mango (1), Sweet banana (1), Pawpaw (1)	Groundnut (1), Sunflower (1), Sesame (1), Cotton seed (1)	Maize (3), Millet (3)	Honey (1), Vanilla (2), Mushrooms (2), Cocoa (1)

Table 4. Products in scarce supply in Kampala by market outlet and product category Numbers in parenthesis after a product denotes the number of traders responding

Market outlet	Livestock products	Roots, tubers and plantains	Fruits and vegetables	Legumes and oil crops	Cereals	High value products
Produce markets and specialised markets for particular products (total n: 44)	Beef (4), Goat (8), Pork (1) Mutton (2), Local chicken (5), Broilers (1), off layers (2), Milk ((2), Fish (1)	Irish potato (3), Sweet potato (3), Cassava (2), Matooke (2)	Pineapple (1), Passion fruit (2), Orange (2), Avocado (1), Sweet banana (1), Egg plants (1) Onions (1), Tomatoes (4), Green pepper (1), Leafy vegetables (1), Pumpkin (1)	Beans (2), Soybean (1), Groundnuts (2)		Okra (1), Chilli (1), Hot pepper (1), Ginger (1), Flowers (4), Vanilla (1)
Local supermarkets, shops and kiosks (total n: 32)	Beef (1), Rabbit (1), Milk (9), Eggs (3)	Irish potato (2)	Pineapple (4), Watermelon (2), Passion fruit (4), Mango (1), Sweet banana (3), Apples (1) Egg plants (1), Tomato (4), Cabbage (1), Onion (1), Spinach (1) Lettuce (1), Leafy vegetables (3), Pumpkin (1), Green pepper (1), Carrot (1)	Beans (3), Groundnuts, Sesame (1), Soybean (1), (3), Peas (1)	Maize (1),	Mushrooms (2), Chilli (1), Roses (1), Hides and skins (1)
Large supermarkets (total n: 2)	Fish (1), Milk (1), Eggs (1)		Pineapple (1), Orange (1), Avocado (1), Watermelon (1) Tomato (2), Leafy vegetables (1)		Wheat (1), Rice (1),	Honey (1)
Meat roasters and local butcheries (total n: 28)	Beef (2), Pork (9), Goat (6), Broiler (1)					
Street vendors (total n: 5)	Chicken (1)		Passion fruit (2), Orange (2), Apples (1), Straw berry (1) Pumpkin (1)	Fresh beans (1), Sesame (1)		
Hotels and restaurants (total n: 19)	Chicken (2), Beef (1), Goat (1), Pork (1), Milk (1) Fish (1)	Cassava (3)	Pawpaw (1), Passion fruit (1)			
Institutions (total n: 5)	Chicken (1), Eggs (1), Beef (1)	Sweet potato (1), Cassava (1)			Rice (1), Maize (2)	
Agro-processors, specialised butcheries (total n: 20)	Fish (1), Beef (2), Goat (1), Mutton (1)	Cassava (2)	Pineapple (2), Mango (3), Orange (1), Sweet banana (1) Pawpaw (1), Apples (1), Lemon (1) Tomato (1)	Groundnuts (1)	Maize (5), Millet (1)	Honey (1), Vanilla (2), Cocoa (1), Chilli (2), ginger (1)

Table 5. Products, additional to those selected by NAADS trailblazing farmers, that are in high demand and scarce supply, by product category

Product category	High demand	Scarce supply
Livestock products	-	Mutton, rabbit
Roots, tubers and plantains	Cassava	Cassava
Fruits	Watermelon, apples, grapes, sugarcane	Watermelon, apples, strawberry, lemon
Vegetables	Tomato, onion, leafy vegetables, green pepper, carrot, lettuce, cucumber, cabbage	Tomato, green pepper, leafy vegetables, pumpkin, cabbage, onion, spinach, lettuce, carrot
Legumes and oil crops	Cowpea, peas, sesame, cotton seed	Peas, sesame
Cereals	Wheat	Wheat
High value products	Ginger, chilli, roses, hides and skins, cocoa	Okra, chilli, hot pepper, ginger, flowers, roses, hides and skins, cocoa

Table 6. Reasons for scarcity of products

Category	Sub-category	Reason for scarcity
Livestock	Beef	High transport costs, High taxes, Dry season
	Pork	Difficult accessibility to remote areas, Insecurity in the production areas (northern region), Diseases (swine fever), Quarantine, Dry seasons, Demand exceeding supply, Competition from other traders, High prices, Inconsistency in supply
	Goats	Inconsistency in supply pattern, Low production, Transportation problem, seasonality
	Broiler	High demand compared to supply
	Local chicken	Low production, High prices, Inconsistency in supply
	Milk	High demand for the product, Poor infrastructure to production areas, Seasonality production
	Fish	Inconsistency in supply, Unstable prices
Roots, tubers and plantain	Irish Potato	Fluctuations due to seasonality, Low production, Poor infrastructure
	Sweet Potato	Fluctuations due to seasonality
	Cassava	Fluctuations due to seasonality, Low production
	Pineapple	Fluctuations due to seasonality
Fruits and vegetables	Orange	Low production, Unstable prices
	Passion Fruit	Unstable prices, Low production, Poor infrastructure to production areas
	Mango	Fluctuations due to seasonality
	Sweet banana	Fluctuations due to seasonality
	Watermelon	Inconsistency in supply
	Apples	Delays in importation
	Tomato	Fluctuations due to seasonality
	Green pepper	Fluctuations due to seasonality
	Carrot	Fluctuations due to seasonality
	Lettuce	Fluctuations due to seasonality
	Leafy Vegetables	Fluctuations due to seasonality
Legume and oil crops	Beans	Fluctuations due to seasonality
	Groundnuts	Low production, High demand for the product, Inconsistency in supply
Cereals	Rice	Fluctuations due to seasonality
	Maize	Fluctuations due to seasonality
	Millet	Inconsistency in supply
High value	Honey	Low production, Poor production methods, Inconsistency in supply

Table 7. Change in volume of purchases for products in high demand for the past two years in different market outlets

Market outlet	Responses	Product categories and sub-categories									
		Livestock			Roots, tubers and plantain		Fruit and vegetables		Pulses and oil crops	Cer-eals	High value products
		Meat	Poultry	Dairy	R&T	Plantain	Fruits	Veget-ables			
Produce markets	Constant	22	60	0	22	17	5	18	33	0	100
	Medium	44	20	0	44	50	53	55	33	100	0
	Greater purchase	34	20	100	34	34	42	27	34	0	0
Local supermarkets, shops and kiosks	Constant	0	33	0	0		5	0	18	25	0
	Medium	0	0	50	50	-	31	29	18	25	0
	Greater purchase	100	67	50	50		64	71	64	50	100
Large Supermarkets	Constant		50	0			25	0			0
	Medium	-	50	0	-	-	75	0	-	-	0
	Greater purchase		0	100			0	100			100
Street vendors	Constant	100	100				22	33	0		
	Medium	0	0	-	-	-	0	0	0	-	-
	Greater purchase	0	0				78	67	100		
Hotels and restaurants	Constant	21	31	0		19	25		0	0	
	Medium	32	23	50	-	14	25	-	75	50	-
	Greater purchase	47	46	50		57	50		25	50	
Institutions/Schools	Constant	50			0	0		0	20	40	
	Medium	50	-	-	100	0	-	100	40	20	-
	Greater purchase	0			0	100		0	40	40	
Agro-processors	Constant	0	0	0	0		0	0	0	0	17
	Medium	60	50	0	100	-	14	50	0	50	0
	Greater purchase	40	50	100	0		86	50	100	50	83

Produce markets, on the other hand, whilst reporting increased demand, growth is less strong than in other outlets. Large supermarkets report strong growth in the demand for milk, vegetable and high value products. The appearance of large multi-national supermarkets in Kampala is a fairly recent occurrence, and it is probably too early yet to gauge the effect that they are having on the more traditional food markets, such as produce markets, and the local supermarkets, shops and kiosks. The information could suggest that the produce markets may be losing trade to the local supermarkets, shops and kiosks, which in turn are showing strong growth across categories despite the emergence of the large supermarket sector.

Products of interest to NAADS farmers

As reported above, all products prioritised by NAADS farmers in the trailblazing sub-counties are in high demand in Kampala except soybean, pigeon pea, sorghum and coffee. Of these latter four products, soybean was reported to be in scarce supply in produce markets and local supermarkets, shops and kiosks suggesting that there is a niche in these markets for soybean that could be filled.

Information collected on purchase conditions for selected range of the products prioritised by NAADS farmers across market outlet is presented in Tables 8, 9 and 10. As can be appreciated, the purchase conditions vary significantly across market outlet. The volumes purchased, price paid and minimum quantity purchased all vary significantly depending on the type of market outlet.

In terms of total volumes purchased per week, agro-processors, which include livestock abattoirs, dairies and fruit and vegetable processors and grain millers, have the largest throughput. Produce markets, large supermarkets, local supermarkets, small shops and kiosks follow these. This information can help to estimate the total size of demand for a particular product in Kampala. This has yet to be done. Some outlets, especially producer markets and some agro-processors, source their products by purchasing at the farm gate. This can be an advantage for the small farmer, but prices are lower. For those products for which information was obtained and depending on the product, the prices paid to farmers at the market premise ranged from 8 to 30 per cent higher than the price paid at the farm gate. It is very evident from the information presented in Tables 8, 9 and 10 that there is a significant variation in the price paid by different market outlets. The lowest prices are paid by agro-processors and the highest by supermarkets, as might be expected.

The minimum quantity purchased and frequency of delivery are important parameters for an individual farmer or group of farmers, and the selection of a market outlet with which to deal will often be determined on the capacity to meet these two parameters. For fruits, producer markets and local supermarkets, shops and kiosks have lower minimum purchases than the large supermarkets. For cereals and grain legumes, minimum purchase can vary from 1 kg to 15 t depending on the outlet. Obviously, for small farmers to achieve minimum purchase volumes of 15 t requires collective action to bulk sufficient quantity of product. Market outlets that have lower minimum purchase may therefore be more appropriate for most farmer groups, at least at the outset.

Frequency of delivery varies widely, and depends not only a product's characteristics (degree of perishability) but also the type of market outlet. Even within the same type of market outlet, for example produce markets, small supermarkets or institutions, the frequency of delivery can be very different, with some traders or purchasers preferring fortnightly, weekly, twice weekly or three times a week delivery of products. Their requirements depend on the resources and infrastructure that they have to store products once purchased. Very perishable products, in particular those of livestock origin often require daily delivery (Table 9). Fruits are usually delivered once or several times in a week (Table 8). Cereals and grains are more often delivered weekly, fortnightly, and in some cases monthly; however, smaller purchasers also require several deliveries in a week (Table 10).

All market outlets have quality requirements for the products they purchase from farmers. Some of these are very specific to a particular purchaser, for example the preference of roasters and small butchers for female pigs, and in producer markets the preference for a high fat content in local chickens (Table 9). In the case of fruits, the differences in quality requirements between market outlets are less easy to discern from the data presented, and all outlets appear to have similar requirements (Table 8). However, in reality the supermarkets, both large and small have more stringent requirements, which are adhered to closely (Weatherspoon and Reardon, 2003). Depending on the product being transformed, some agro-processors may have less stringent quality requirements, especially with respect to size and appearance.

Finally, payment conditions also differ. Cash and credit are the most predominate forms of payment, although large supermarkets and some agro-processors only pay by cheque Payment by cheque makes it necessary for a farmer or farmer group to open a bank account. Although not evident in the tables presented payment by cheque is often effected 15 to 30 days following the delivery of the product. These conditions often place small farm enterprises at a great disadvantage because of the difficulty they have in procuring credit for working capital.

Table 8. Purchase conditions for selected fruits in selected market outlets

Product	Market outlet	Volume week^{-1}	Purchase price USh		Purchase conditions			
			Farm gate	Market premise	Minimum quantity	Frequency of delivery	Quality requirements	Payment conditions
Pineapple	Produce markets	1,570 heads	620 /head	800 /head	115 heads	- Daily - Weekly - Twice a week - Three times a week	- Heavy weight - Mature - Bruise/disease free - Fresh	- Cash - Cash& credit
	Large supermarket	280 heads	-	800 /head	140 heads	- Twice a week	- Bruise/disease free - Fresh - Cleaned properly - Ripening colour	Cheque
	Agro-processors	3,125 heads	-	500 /head	-	- Daily	- Cleaned properly - Bruise/disease free - Mature fruit	Cash
Passion	Produce markets	1,420 kg	46,500/ bag	60,880 /bag	83 kg	- Weekly - Twice a week	- Bruise/disease free - Uniform colour - Fresh	- Cash - Cash& credit
Mango	Produce markets	200 kg	4,050 /bag	5,500 /bag	35 kg	- Weekly - Three times a week	- Heavy weight - Low fibre content - Medium to large size	Cash
	Large supermarkets	260 kg	-	1,400 /kg	120 kg	- Weekly	- Bruise/disease free - Medium to large size - Low fibre content - Well cleaned	Cheque
Avocado	Small supermarkets	47 kg	-	175 /head	12 kg	- Weekly - Three times a week	- Mature fruit - Medium to large size - Fresh	Cash
	Large supermarkets	100 kg	-	500 /head	50 kg	-Twice a week	- Medium to large size - Mature fruit - Uniform colour	Cheque

Note: a bag of passion fruit or mango weighs 100 kg

Table 9. Purchase conditions for selected livestock products in selected market outlet

Product	Market outlet	Volume Week^{-1}	Purchase conditions: Purchase price USh kg^{-1}		Minimum quantity	Frequency of delivery	Quality requirements	Payment conditions
			Farm gate	Market premise				
Beef	Produce markets	440 kg	2,090	2,250	76 kg	Daily	Lean meat, properly cleaned, fresh (some mentioned high fat content)	-Cash -Both cash and credit
	Roasters and l. butcheries	495 kg	-	2,200	30 kg	Daily	Lean, tender meat, properly cleaned, fresh	-Cash -Both cash & credit
	Agro-processors	62,300 kg	-	2,000	7,200 kg	Daily	Properly cleaned, certified meat, medium fat content, free of diseases	-Cash -Credit -Cheque
Pork	Produce markets	108 kg	1,590	2,000	10 kg	Daily	Lean meat	- Cash
	Roasters and local butcheries	550 kg	-	2,140	74 kg	Daily Three time a week	Lean, low fat content meat, properly cleaned, disease free, female pig-meat	- Cash - Cash and credit
	Agro-processors	4,050 kg	1,800	-	300 kg	Daily	Lean meat	- Cash & cheque
Local chicken	Produce markets	330 birds	5,690 /bird	7,250 /bird	83 birds	Daily Weekly Twice a week Three time a week	Heavy weight, uniform colour, high fat content	- Cash - Cash and credit
Broilers	Small supermarkets	85 birds	-	3,200 /bird	-	Weekly Twice a week	Average weight > 1.5 kg, dressed and clean	-Cash -Both cash and credit
	Roasters and l. butcheries	62 birds	-	3,300 /bird	10 birds	Daily	Heavy and healthy birds	- Cash
	Agro-processors	1850 birds	-	3,500 /bird	50 birds	-	Heavy weight > 2kg	- Cash and credit
Milk	Small supermarkets	315 litres	-	375 /l	58 l	Daily Twice a week	Free of contaminants, fresh, free of water addition	- Cash
	Agro-processors	10,000 litres	-	300 /l	50 l	Daily	Free of contaminants, fresh	- Credit and cash

Table 10. Purchase conditions for selected cereals and legumes in selected market outlets

Product	Market outlet	Volume kg week^{-1}	Purchase conditions					
			Purchase price USh kg^{-1}		Minimum quantity kg	Frequency of delivery	Quality requirements	Payment conditions
			Farm gate	Market premise				
Maize	Produce markets	30,000	160	-	1	Twice a week	Medium to large grain size	Cash
	Institutions	4,850	-	356	593	Weekly. Monthly, twice a week, three time a week	Uniform colour	Cash Both cash and credit
	Agro-processors	71,600	230	300	15,000	Daily, once every month	Heavy weight, pest free, uniform colour, properly dried, medium to large grain size	Cash Both cash and credit
Rice	Small supermarkets	220	-	882	100	Weekly, fortnightly, once a month	Properly cleaned, pest free, uniform colour, good odour	Cash Both cash and credit
	Institutions	320	-	970	80	Weekly, monthly, twice a week, three time a week	-	Cash Credit
Beans	Produce markets	130,300	320	484	340	Twice a week	Properly cleaned, uniform colour, medium to large grain size	Cash Both cash and credit
	Small supermarkets	370	400	572	150	Daily, weekly	Properly cleaned, uniform colour, medium to large grain size	Cash Cheque & credit
	Institutions	380	-	518	440	Weekly, monthly, twice a week, fortnightly	Properly cleaned, pest free, uniform colour, properly dried, medium to large grain size	Cash Both cash and credit
Groundnuts	Produce markets	43,000	825	1,066	500	Twice a week	Properly cleaned, pest free, uniform colour, properly dried, medium to large grain size	Cash
	Small supermarkets	520	1,010	1,210	68	Daily, weekly, twice a week, fortnightly	Properly cleaned, pest free, uniform colour, properly dried, medium to large grain size	Cash Cheque & credit
	Agro-processors	10,000	-	1,250	-	Weekly	Uniform colour, pest free	Cash

Conclusions

The farmers working under the NAADS program are typically characterised as poor smallholders living mainly in the remoter parts of the country. Their production is principally subsistence with a narrow commodity base, and they sell their surplus production in local markets. Their status defines the extent to which they can tap into the different market outlets. This study has confirmed that market opportunities do exist for the majority of the products that they have prioritised and that several other alternatives are also open to them. However, the ability to enter into these markets, especially those that offer higher prices means that they must satisfy a range of market requirements that get more stringent as they become more sophisticated.

The NAADS strategy recognizes the need to support farmer groups in collective marketing, which has benefits that include increased volume of produce by bulking, taking advantage of economies of scale, increased bargaining power for better prices and group synergies. However, NAADS can only perform this function effectively after having identified appropriate market outlets for smallholder production. Studies such as the present one are therefore an essential tool in determining potential market opportunities for existing and alternative crops and livestock products.

Among the 60 products identified to have market potential, there are those that rural small-scale farmers may have a comparative advantage in producing because of their production environment and limited resource requirements. Examples of these types of products include: local chicken, goats, pigs, rabbit, passion fruit, pineapple, onion, Irish potato, groundnuts, rice, vanilla and honey. Other alternatives that are feasible for rural farmers, and which they already produce, include sweet potato, cassava, maize, millet and beans. These are lower value crops that fetch lower prices in the market. More successful marketing of these crops, through collective marketing or simple value addition, could lead the way to subsequently incorporating higher value products such as those listed in the paragraph above.

A further category of products includes tomatoes, green pepper, carrot, lettuce, chilli, mushrooms and milk. These products are higher value but whose perishability range from intermediate to high, thus requiring greater care and cost in handling and marketing. Good organisation and access to capital for both production and marketing are necessary. Some smallholder organisations have successfully moved into the production of these crops with initial high investment in service provision. Lessons from these experiences should be learned and applied to other farmer groups that show potential for profitable production.

Among the key areas that NAADS needs to address in enabling these farmers to improve their ability to capture the opportunities afforded by the expanding demand for food products in Kampala, and thus improve smallholder living conditions include:

1. Technical and business extension services that address among others product quality and post harvest handling;
2. Access to and utilisation of market information;
3. Support for farmer organisation for collective action in marketing and the provision of other essential services (inputs etc.), and
4. Finance schemes, to motivate expansion of production and the creation of new enterprises, and especially tailored to the needs of emerging businesses.

However, successful smallholder-based agroenterprises not only depend on the identification and subsequent development of market opportunities through the provision of effective business development services (technical assistance, training, finance, business skills, information, etc.) but also on the continued generation of new knowledge and technology on which all innovation is based. The role of the national agricultural research system, including NARO, the universities and other private sector research organisations, is therefore critical in achieving and maintaining the competitiveness of small agroenterprises.

The present study illustrates how demand exists for a very wide range of food products in the Kampala market. While research institutions such as NARO and Makerere University can and do undertake research on many of these products, there are many more that it will be difficult for these institutions to cover because of resource constraints. This suggests that there is a need to complement the present research function of these institutions with two fundamental services for farmers' organisations and their service providers:

1. Up-to-date information on emerging market opportunities for crop and livestock products, and
2. An information-clearing house that assembles, critically reviews and disseminates the knowledge and technology generated in other countries and research centres for those products for which it is not possible to undertake research in Uganda.

Recent examples of the need for this type of service are vanilla and moringa, two products that have generated a considerable amount of interests from farmers in Uganda. However, it is difficult for farmers and other market chain actors to access relevant and reliable information on either the existing and potential market for these products or on basic agronomic practices on which to base commercial production. This situation has occurred despite the fact that a great deal of information has been generated by institutions in other countries that could be of importance for Ugandan farmers.

There is an immediate need to develop a mechanism that can inform research and development managers about emerging market demands, information that is essential for prioritising activities related to the support of small farmers and their transition to a more commercially oriented agriculture. For research institutions, this orientation requires greater attention to minimising costs, optimising profitability (USh $acre^{-1}$) and to means of meeting delivery and quality requirements, and less attention to maximising productivity (t $acre^{-1}$).

Acknowledgements

The authors acknowledge and are grateful for the participation of traders who provided the information on which this study is based. They are indebted to Herbert Ainembabazi for his support in data analysis. The authors also wish to express their appreciation for the financial support received from National Agricultural Advisory Service (NAADS) Secretariat and the active involvement of NAADS staff Florence Kabugo, Remigio Achia, and Millie Mugenyi during the monthly monitoring and evaluation meetings.

References

Government of Uganda (GoU)., 2000. National Agricultural Advisory Services Programme (NAADS): "Master Document of the NAADS Task Force and Joint Donor Groups". Ministry of Agriculture Animal Industry and Fisheries (MAAIF).

Kotler, P., 1999. Kotler on Marketing. How to create, win and dominate markets. Simon and Schuster UK Ltd.

Maxwell, D., 1995. Alternative food security strategy: a household analysis of urban agriculture in Kampala. World Development. Vol 23, no 10: 1669-1681.

Ostertag G., C. F., 1999. Identifying and assessing market opportunities for small rural producers. Tools for decision making in natural resource management. Cali, Colombia: Centro International de Agricultura Tropical. 264p.

Weatherspoon, D. D and Reardon, T., 2003. The rise of African supermarkets: Implications for agrifood systems and the rural poor. Development Policy Review. May, 21 (3), 16p