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Market conduct and performance of wild and semi-wild food plants traded in Bunyoro-Kitara Kingdom, Uganda

Jacob Godfrey AGEA[1]*, Clement Akais OKIA[1], Bernard Bonton OBAA[1], James Munga KIMONDO[2], Prossy ISUBIKALU[1], Dino Andrew WOISO[3], Joseph OBUA[4] and Zewge TEKLEHAIMANOT[5]

[1]Department of Extension and Innovation Studies, College of Agriculture and Environmental Sciences, Makerere University, P.O. Box 7062 Kampala, Uganda.
[2]Kenya Forestry Research Institute, P.O Box 20412-00200, Nairobi, Kenya.
[3]Department of Biological Science, Sokoine University of Agriculture, P.O. Box 3038, Morogoro, Tanzania.
[4]Inter-University Council of East Africa, P.O Box 7110, Kampala Uganda.
[5]School of Environment, Natural Resources and Geography, Bangor University, Bangor-Gwynedd, LL57 2UW, United Kingdom.

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This study assessed the market conduct and performance of wild and semi-wild food plants (WSWFPs) traded in Bunyoro-Kitara Kingdom, Uganda. A rapid market survey (RMS) was conducted in 17 local markets in Kibanda County. Market prices and weekly volumes of traded WSWFPs were compared with some of the selected conventional food plants traded in the same locality. Weekly volumes of traded WSWFPs based on the usual units of the measurement (including bundles and heaps) within the markets were estimated per species sold. The profit margin was computed per traded species. Transport expenses were excluded in the cost computation because only 4% of the traders incurred transport expenses in form of hired bicycles. Out of 62 WSWFPs belonging to 31 botanical families documented as edible in the Bunyoro-Kitara Kingdom, about 47% belonging to 12 botanical families were traded in formal and informal markets. Market information system was largely rudimentary and undeveloped, and traders rely mainly on information from fellow traders as well as their customers to make market decisions. Traded products were primarily delivered to markets on foot and using bicycles. Currently, there are no definite or formal mechanisms of setting prices of traded WSWFPs; most traders relied on the daily market demand, time and risks involved in gathering process, information of the price of substitute food and prices from other areas, knowledge of the past seasons' prices, and on the costs incurred from the suppliers. With exception of few species such as *Physalis peruviana* and *Basella alba*, weekly volumes of traded WSWFPs were low as compared to most conventional food crops. On the other hand, prices of most traded WSWFPs were generally similar to those of alternative conventional food plants marketed in the area. Some WSWFPs like *Hibiscus acetosella*, *B. alba* and *Hyptis spicigera* (seeds), had higher market prices per unit measurement as compared to the related conventional food plants. Average weekly profits yielded from the trade of various WSWFPs were moderate and ranged from UGX 764.5 to 6754.2 (USD 0.38 to 3.36). The highest return came from species such as *H. spicigera, Hibiscus sabdariffa*, *Aframomum angustifolium, Borassus aethiopum, B. alba*, *Solanum nigrum*, *Aframomum alboviolaceum* and *Canarium schweinfurthii.*

Key words: Market conduct, market performance, wild edibles, wild foods, Uganda.

INTRODUCTION

Wild and semi-wild food plants (WSWFPs) have significant cultural, biological and economic value at local, regional and national levels (Agea, 2010; Agea et al., 2011). People who utilize WSWFPs to meet these needs often rely on organized exchange systems to obtain them (De Beer and McDermott, 1989; Moreno-Black, 1991; 1994; Moreno-Black and Price, 1993; Ngarmsak, 1987; Scoones et al., 1992). An important aspect of recent ethnobiological studies has been the focus on how resources are defined, appropriated and distributed. Most subsistence-based communities are linked to larger economic and political systems through markets. Consequently, markets are a valuable arena for gathering information on people-resource relationships (Agea et al., 2008; Kimondo et al., 2010). Recent marketplace studies have shown the importance of this domain for monitoring changing selection pressures on specific resources, that is, selection by people because of culturally defined qualities of the items (Bye and Linares, 1983, 1990; Jacquat, 1990; Johnson and Johnson, 1976; Schlage, 1969; Scoones et al., 1992; Wester and Chuensanguansat, 1994; Whitaker and Cutler, 1966). Indeed the importance and complexity of food marketing systems is normally associated with economic and socio-political development. In efficient and balanced marketing systems, consumers get the highest food value at the lowest possible price, farmers or gatherers (in case of WSWFPs) obtain the highest possible returns from food sales, and the market agents earn the greatest profit possible (Kohls and Uhl, 2002).

The markets for wild edible products have been compared with cultivated products in some parts of Africa. For instance, Okafor (1980) found out that the prices for wild products are comparatively higher, especially during the seasonal shortfall Johnson and Johnson (1976) reported that the periods when other cultivated products are unavailable. marketing of *Irvingia gabonenesis*- a wild fruit is particularly important in this period in southern Nigeria where traders even import this wild fruits from Cameroon. Many more wild products have potential economic values, which are yet unexploited (Arnold et al., 1985; Rasoanaivo, 1990). Although these wild and semi-wild food resources make a significant contribution to rural livelihoods and to the national economies of many countries, the magnitude of the income derived from them and particularly wild food plants is not well known, due to a lack of systematic and rigorous data collection at country level (FAO, 2000). Besides this, a recent analysis of markets in sub-Saharan and southern Africa revealed that markets for indigenous and wild edible plants are largely informal, small and volatile (Russell and Franzel, 2004) which often escape the attention of policy makers. As such, these resources are often ignored in official nutritional investment projects.

In Uganda, there are amazingly few accounts of documented trade in WSWFPs, despite growing importance of the WSWFPs in the country. Worst still, there is a dearth of information on the market conducts and performance of wild or semi-wild food resources in the country. In this paper, we reported the findings of an assessment of the market conduct and performance of WSWFPs traded in Bunyoro-Kitara Kingdom, Uganda. The assessment was guided by the following research questions: Which WSWFPs are traded in Bunyoro-Kitara Kingdom? What are the sources of market information? How are the traded WSWFPs transported to the market locations? How are their market prices determined? What quantities of WSWFPs are traded weekly in the market during the harvest seasons? What are the average unit prices of the traded WSWFPs and how is the market demand of traded WSWFPs like? Lastly, what are profit margins for traded WSWFPs during the harvest seasons?

MATERIALS AND METHODS

A rapid market survey (RMS) was conducted in 17 local markets in Kiryandongo and Mutunda sub-counties of Kibanda County (Figure 1). Kibanda is one of the counties of Bunyoro-Kitara Kingdom, which is located in the western region of Uganda. It lies between 0°36' and 2°20' N, and 30°30' and 32°23' E (UDIH, 2005). The surveyed markets included Kiryadongo, Kattulikire, Tecwa, Chopelwor, Bweyale, Kalwala, Pumuzika, Kiryampungura, Karungi, all in Kiryandongo sub-county, and Diima, Karuma, Kawiti, Laboke, Mutunda, Nanda, Okwece and Teyango in Mutunda sub-county. Five mobile hawkers and eleven home-based/roadside markets were also surveyed.

RMS is a procedure for analysing commodity markets using a combination of techniques such as structured and semi-structured questionnaires with key informant informants, direct observations, and other participatory rural appraisal tools (Simmons et al., 1994). The method is very useful in trying to identify and understand the current market trends, opportunities and constraints (Simmons et al., 1994). The framework is best suited to research studies in which either little research has been done before, poorly conducted or needs an update (Holtzman et al., 1993). Its strength includes its practicability on identifying and sharpening research problems and ranking them according to importance. It can also detect emerging issues, themes and opportunities facing marketing systems. So far, the framework has been widely used to analyse market systems. Examples are the analysis of fuelwood and charcoal markets in Asia (Padoch, 1988; FAO, 1993).

It is obvious that probability sampling allows a random selection of elements, each with non-zero chance of being selected for the sample and hence produces good representation of the population. However, due to the descriptive nature of this study, purposive sampling was used to select traders selling WSWFPs for informal interviews. Semi-structured questionnaire was administered face-to-face to sixty six (66) traders that were encountered selling WSWFPs in the formal markets: five (5) mobile hawkers that were met selling mainly wild fruits, and eleven (11) home-based/roadside traders selling WSWFPs. Because of their small numbers, all traders that were found selling WSWFPs were interviewed.

*Corresponding author. E-mail: agea@forest.mak.ac.ug or jgagea@gmail.com.

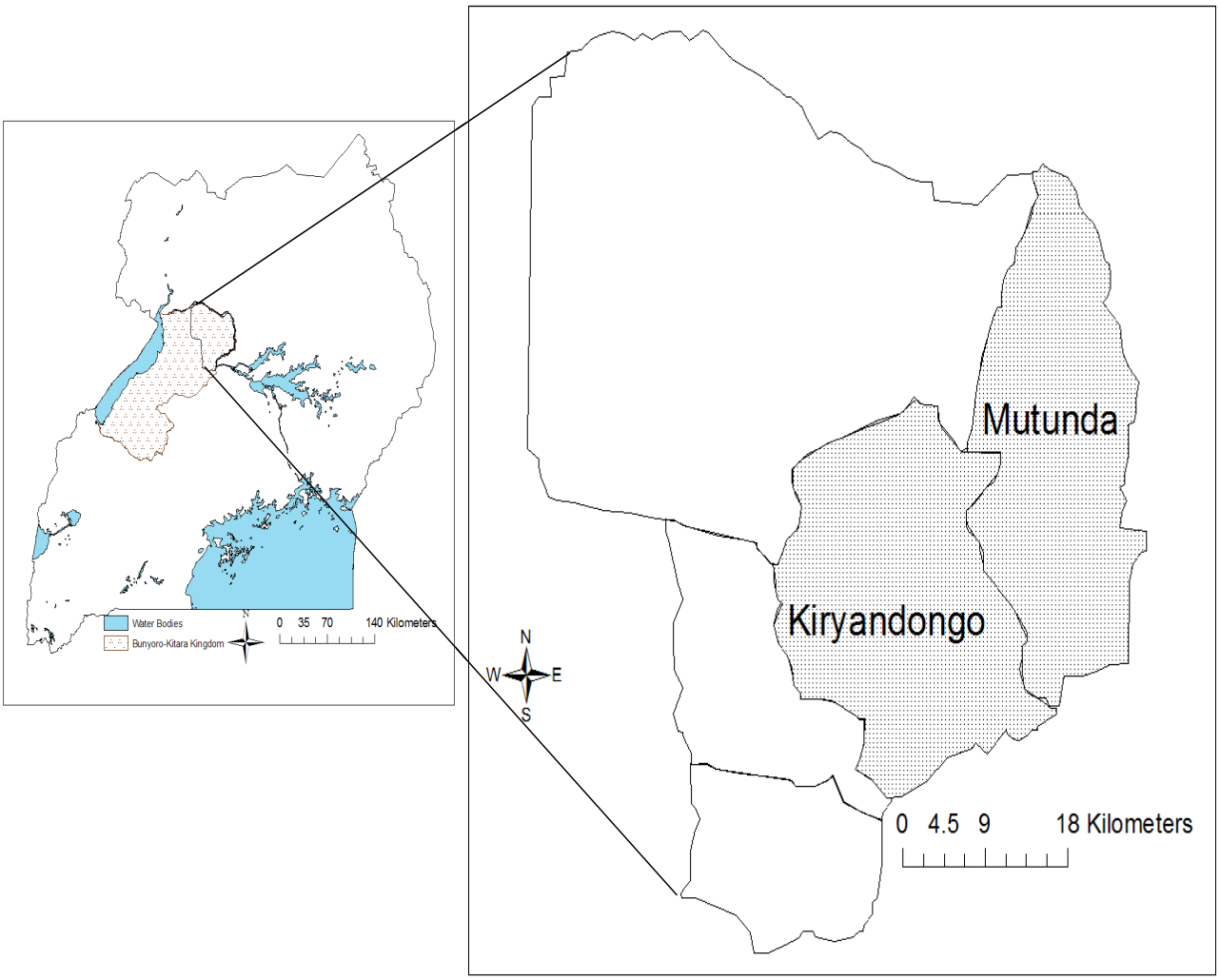

Figure 1. Location of Bunyoro-Kitara Kingdom and the study sites.

Data analysis

In order to describe the market potential for WSWFPs; data from RMS which included market characteristics, market conduct and performance were analysed using simple descriptive statistics in Excel spreadsheet and MINITAB statistical package. Data were coded to obtain a limited set of attributes for a variable (Babbie and Mouton, 2001), cleaned (checked) for mistake and entered into the computer. As a coding process, lists of responses were made for variables, groups identified and numbers assigned to these groups. However, some data were not coded but used descriptively. Market prices and weekly volumes of traded WSWFPs were compared with some of the selected conventional food plants (*Abelmoschus esculentus*, *Brassica oleracea var capitat*, *Mangifera indica* and *Sesamum indicum*) traded in the same locality. Weekly volumes of traded WSWFPs based on the usual units of the measurement (including bundles and heaps) within the markets were estimated per species sold. The profit margin, which is the dollar value difference in the selling price and total cost (Holland, 1998), was computed per traded species. Transport expenses were excluded in the cost computation because only 4% of the traders incurred transport expenses in the form of hired bicycles.

RESULTS

Socio-demographic characteristics of the traders

Socio-demographic characteristics of the interviewed traders (vendors) selling WSWFPs are presented in Table 1. The majority (82%) of the traders were women. Traders' ages ranged from 13 to 75 years, although the majority (59%) were above 36 years old. About 15% were less than 18 years old and the rest were aged between 18 and 36 years. About 74% of traders were married, 15% were not yet married (single) and the rest were either widow/widower or divorced/separated. The majority (51%) of the traders had attained primary level of education and only 9% had no formal education. The rest were either secondary school leavers or had attained tertiary level of education.

Although, all respondents interviewed were traders, only 51% reported trading as their main occupation and

Table 1. Socio-demographic characteristics of the traders selling WSWFPs.

Variable	Response (%)
Sex	
Male	18.3
Female	81.7
Age	
<18	14.6
18-36	26.8
>36	58.6
Marital status	
Single	15.7
Married	73.9
Divorced/separated	2.4
Widow/widower	8.0
Education level	
No formal education	9.4
Primary	51.4
Secondary	31.7
Tertiary	7.5
Major occupation	
Market vendor/trader	55.1
Subsistence farming	42.6
Others (Housewifery, students, brick making)	2.3
Family size	
<3 people	15.3
3-6 people	18.5
>6 people	66.2
Annual cash income (UGX)*	
<200,000 (≈USD 100)	7.4
200,000-400,000 (≈USD 100-200)	31.0
>400,000 (≈USD 200)	61.6
Main sources of cash incomes	
On-farm	70.8
Off-farm	29.2

*USD1 = 2010 Uganda shilling (UGX).

43% said their chief occupation was subsistence farming. The rest were mainly occupied in housewifery, in school as students, and in small scale brick making activities. Most (66%) traders had more than six persons per household and the average family size was seven persons. The majority (62%) of the traders had annual cash income greater than UGX 400,000 (USD 200). Thirty-one percent had annual cash income ranging from UGX 200,000 to 400,000 (≈USD 100 to 200) and the rest earned less than 200,000 (≈USD 100) per year. The majority (71%) of the traders earned their cash income mainly from on-farm activities and the rest (29%) from off-farm activities.

Which WSWFPS traded in the market?

Twenty nine (29) WSWFPs belonging to 12 botanical families were recorded to be traded during the rapid market survey (RMS) (Table 2). The most frequently recorded species were *Amaranthus dubius* (42.7%), *Hibiscus sabdariffa* (39.0%), *Cleome gynandra* (32.9%), *Solanum lycopersicum* (31.7%), *Solanum nigrum* (29.3%), *Tamarindus indica* (26.8%), *Amaranthus spinosus* (24.4%), *Basella alba* (24.4%), *Amaranthus graecizans* (22%), *Canarium schweinfurthii* (22%) and *Physalis peruviana* (22.0%). In terms of botanical family, members of Amaranthaceace, Solanaceae and Malvaceae were the most represented in the markets (Table 2).

What are the sources of market information?

Most (62%) traders of WSWFPs rely on communication from other traders either from within the same market location or from different markets as the main sources of market information (Figure 2). Other traders (33%) depended more on interaction with their customers (buyers) as the source of market information such as what they prefer, and how much they pay for similar products elsewhere. Reliance on media and service providers are very limited. Only 3% of traders ever received market information through media sources (local FM radios). Similarly, only 2% received market information from service providers operating within the area.

How are the traded WSWFPs transported to the market locations?

Majority (74%) of the traders transported WSWFPs they sell to the market locations on foot (walking) carrying them on their heads. Others transported their products to the markets using family bicycles (10%), hired bicycles (4%) and family wheelbarrows (2%) (Figure 3). Ten percent of traders did not transport their products to the formal market locations as customers come to buy from their homestead stalls. Only 4% of the traders incurred transport costs in the form of hired bicycles.

How are the market prices of WSWFPs determined?

Results presented in Figure 4 indicate that most (73.2 ±

Table 2. WSWFPS traded in the market within the study locality.

WSWFPs	Local names	Botanical family	Percentage of traders selling the plant
Amaranthus dubius Mart. *ex* Thell.	Doodo	Amaranthaceace	42.7
Hibiscus sabdariffa L.	Bamya, Ekikenke	Malvaceae	39.0
Cleome gynandra L.	Eyobyo	Brassicaceae	32.9
Solanum lycopersicum L.	Bunyanya bunyoro	Solanaceae	31.7
Solanum nigrum L.	Enswiga	Solanaceae	29.3
Tamarindus indica L.	Mukoge	Fabaceae	26.8
Amaranthus spinosus L.	Doodo y'amahwa	Amaranthaceace	24.4
Basella alba L.	Enderema	Basellaceae	24.4
Amaranthus graecizans L.	Nyabutongo, Ocoboro	Amaranthaceace	22.0
Canarium schweinfurthii Engl.	Empafu	Burseraceae	22.0
Physalis peruviana L.	Ntuutu	Solanaceae	22.0
Aframomum angustifolium (Sonnerat) K.Schum.	Amatehe, Kongo amor	Zingiberaceae	20.7
Crotalaria ochroleuca G.Don	Kumuro, Alaju	Fabaceae	20.7
Solanum anguivi Lam.	Obuhuruhuru, Katukuma	Solanaceae	20.7
Phaseolus lunatus L.	Amaijalero, Okuku	Fabaceae	19.5
Borassus aethiopum Mart.	Ekituugu, Tugo	Arecaceae	18.3
Hibiscus acetosella Welw. *ex* Hiern	Makawang kulo, Gwanya	Malvaceae	18.3
Corchorus tridens L.	Eteke	Malvaceae	17.1
Corchorus trilocularis L.	Otigo lum	Malvaceae	17.1
Cleome hirta (Klotzsch) Oliv.	Akayobyo akasajja	Brassicaceae	15.9
Vernonia amygdalina Del.	Kibirizi	Asteraceae	15.9
Aframomum alboviolaceum (Ridley) K.Schum	Amasaasi, Ocao	Zingiberaceae	14.6
Amaranthus lividus L.	Bwora, Mboog'ennene	Amaranthaceace	14.6
Mondia whitei (Hook.f.) Skeels	Omurondwa	Apocynaceae	14.6
Vitex doniana Sweet	Muhomozi, Owelo	Verbenaceae	13.4
Bidens pilosa L.	Obukurra	Asteraceae	12.2
Solanum macrocarpon L.	Bugorra	Solanaceae	12.2
Amaranthus hybridus (L.) Thell. subsp. *Cruentus*	Omujuiga	Amaranthaceace	9.8
Hyptis spicigera Lam.	Amola, Lamola	Lamiaceae	9.8

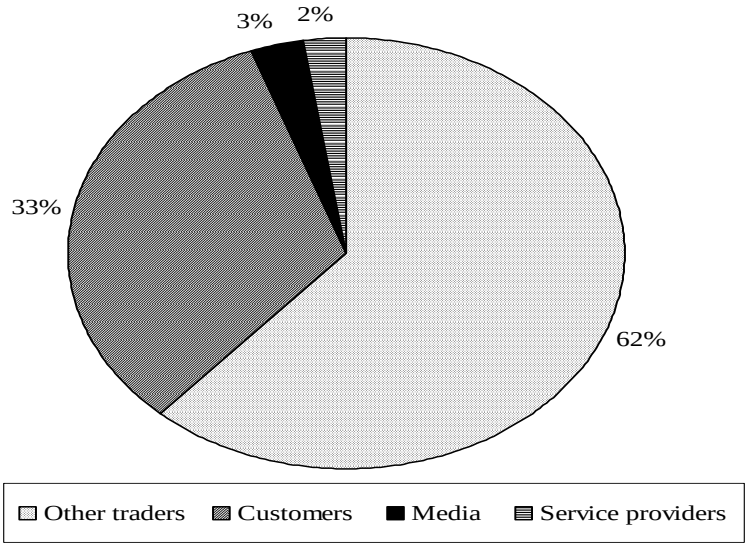

Figure 2. Sources of market information for traders selling WSWFPs.

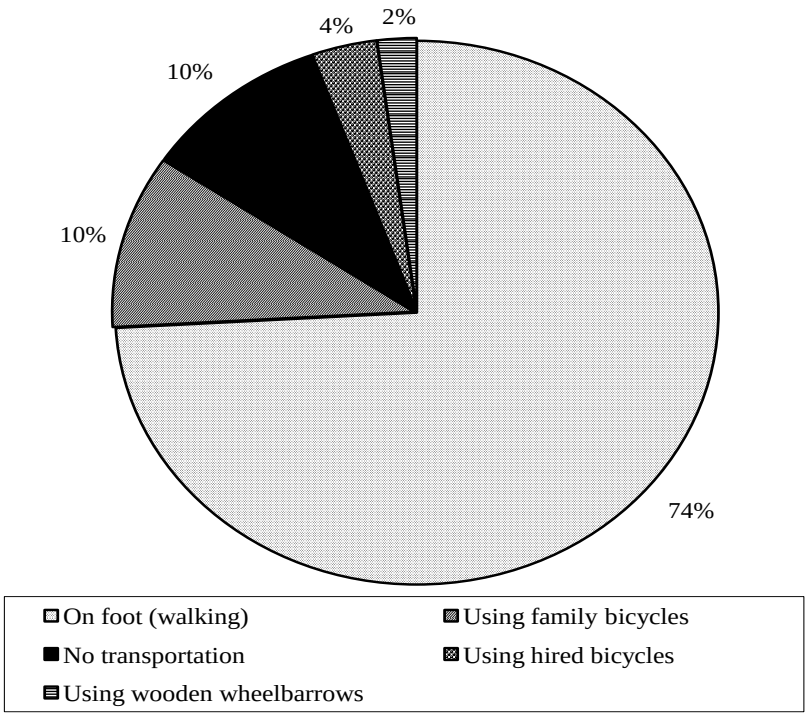

Figure 3. Modes of transport for traded WSWFPs from collection sources to the market locations.

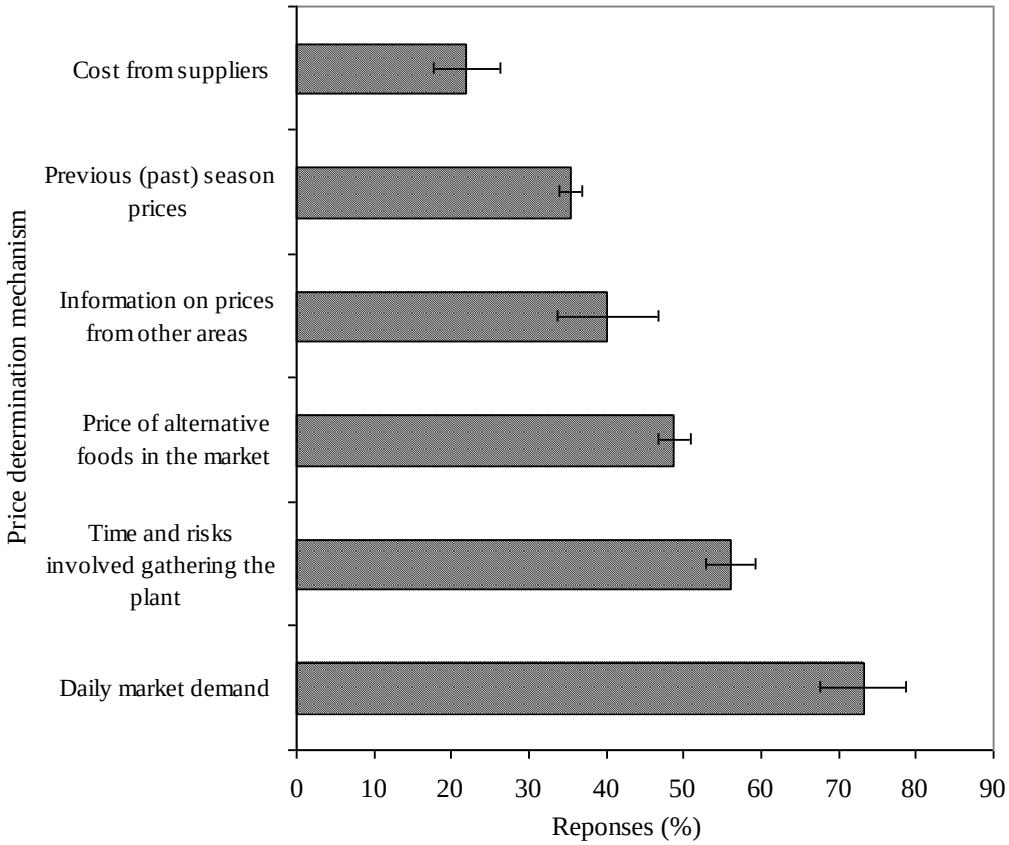

Figure 4. Avenues through which traders determine market prices of WSWFPs sold.

5.5%) traders assign prices to WSWFPs they sell based on the daily market demand of each product as well as on the time and risks involved in gathering of the plant (56.1 ± 3.2%). Other traders rely on price information of alternative (substitute) food plants being sold in the market (48.8 ± 2%) as well as price information from other areas (40.2 ± 6.4%). In addition, 35.4 ± 1.4% of the traders depend on price information of the previous or past seasons; while some (22 ± 4.4%) traders particularly those who are supplied by the gatherers simply rely on costs incurred from suppliers to determine the prices upon which they can sell their products.

What quantities (estimates) of WSWFPs are traded weekly in the market during the harvest seasons?

Among WSWFPs that are often sold in terms of bundles, *H. sabdariffa*, *S. nigrum*, *A. dubius*, *A. graecizans* and *C. gynandra* were sold in the highest quantities per trader weekly during their harvest seasons (Table 3). Whereas among those that are measurable and sold in terms of heaps, *P. peruviana*, *Solanum anguivi*, *B. alba*, *T. indica* and *S. lycopersicum* (Bunyanya bunyoro) were sold in highest quantities per trader weekly during their harvest seasons. Estimated quantities of *Mondia whitei* roots sold per trader weekly was high while the quantities of *C. schweinfurthii* fruits and *B. aethiopum* fruits marketed weekly were low. Similarly, the amount of fresh seeds of *Phaseolus lunatus* and seeds of *Hyptis spicigera* sold weekly were low. The rest WSWFPs were generally sold in very small quantities per trader per week (Table 3).

What are the average unit selling prices of the traded WSWFPs and how is the market demand of traded WSWFPs like?

The market price of WSWFPs sold varied from species to species as well as on the unit of measurements. Among the leafy WSWFPs, the most valuable species were *H. acetosella* with an average price of UGX 493.3 ± 88.4 bundle^{-1}, followed by *B. alba* selling at UGX 440 ± 80.3 heap^{-1} (Table 4). Majority of other leafy WSWFPs including *Crotalaria ochroleuca*, *H. sabdariffa*, *C. gynandra*, *Cleome hirta*, *A. dubius*, and *Amaranthus hybridus* subsp. *Cruentus*, *S. nigrum* and *Amaranthus lividus* had the average market price ranging from UGX 370.6 ± 84.9 to 308.3 ± 79.3 bundle^{-1}. Among leafy WSWFPs sold per bundle, *Bidens pilosa* had the lowest average market price of UGX 160 ± 51.6 bundle^{-1}.

H. spicigera (dry seeds) and *P. lunatus* (fresh seeds) locally called Amaijalero commanded the highest average market price of UGX 1187.5 ± 241.6 and 675 ± 85.6 kg^{-1}, respectively. Fruits of *Aframomum alboviolaceum* and *Aframomum angustifolium* were traded at an average market price of UGX 641.7 ± 202.1 and 558.8 ± 127.8 heap^{-1} respectively. *Borassus aethiopum* fruits also commanded a high average market price of UGX 620.0 ± 178.1fruit^{-1}. Fruits of *C. schweinfurthii* and *Vitex doniana* were traded at average market price of UGX 433.3 ± 45.4 and 363.6 ± 50.5 plastic mug^{-1} respectively. While those of *P. peruviana* were sold at a relatively low market price (UGX 305.6 ± 72.5).

What are profit margins for traded WSWFPs during the harvest seasons?

Average weekly profit yielded from the trade of various WSWFPs per trader ranged from UGX 764.5 to 6754.2 to (USD 0.38 to 3.36) (Table 5). Highest profit comes from selling *H. spicigera* seeds (UGX 6754.2 trader^{-1}), *H. sabdariffa* (5944 trader^{-1}), *A. angustifolium* (5914.2 trader^{-1}), *B. aethiopum* (5749.2 trader^{-1}), *B. alba* (5410.1 trader^{-1}), *S. nigrum* (5343.2 trader^{-1}), *A. alboviolaceum* (5191.9 trader^{-1}) and *C. schweinfurthii* (4922.4 trader^{-1}). Average weekly profit margins for most plants ranged from UGX 4922.4 to 2314.7. However, species such as *A. spinosus* (UGX 1873.4 trader^{-1}), *Corchorus tridens* (UGX 1749.4 trader^{-1}), *Corchorus trilocularis* (UGX 1608.9 trader^{-1}) and *Bidens pilosa* (UGX 764.5 trader^{-1}) had the lowest weekly profit margins.

Weekly average cost incurred per trader during marketing process varied depending on the species. *B. aethiopum*, *H. sabdariffa*, *C. schweinfurthii*, *A. dubius*, *A. graecizans*, *H. Acetosella* and *P. lunatus* had the highest average costs of over UGX 1000 (USD 0.5) trader^{-1} (Table 5). Costs incurred included mainly market dues as well as packing materials (polythene bags). Transport expenses were excluded in the cost computation because only 4% of the traders incurred transport expenses in the form of hired bicycles.

DISCUSSION

WSWFPs traded in the locality

Out of 62 WSWFPs belonging to 32 botanical families reported to be eaten in Bunyoro-Kitara Kingdom (Agea 2010), about 29 (47%) belonging to 12 botanical families were traded in the formal and informal markets in this area, which is a fairly high number considering that many species are consumed either at the household levels or at their collection sites only. About seven to ten WSWFPs species were always available in the markets, showing their high diversity in the markets. As compared to other places elsewhere, the number of WSWFPs traded in the present study is quite high. For instance in Sikkim Himalaya, Sundriyal and Sundriyal (2004) reported that out of 190 wild edible species that are consumed as food in the region, only about 24% are brought to the local markets. In nearly all instances, the findings of this study

Table 3. Estimated quantities of WSWFPs traded weekly in the market during the harvest seasons in Bunyoro-Kitara Kingdom.

WSWFPs sold	Local names	Parts sold	Estimated quantity/week in the harvest season				
			No. of traders selling	Units	Total	Range	Average/ trader
Aframomum alboviolaceum (Ridley) K.Schum.¥	Amasaasi, Ocao	Fruits	12	Heaps	105	5 - 15	8.8
Aframomum angustifolium (Sonnerat) K.Schum.¥	Amatehe, Kongo amor	Fruits	17	Heaps	197	5 - 20	11.6
Amaranthus dubius Mart. *ex* Thell.*	Doodo	Leaves and shoots	35	Bundles	571	8 - 30	16.3
Amaranthus graecizans L.*	Nyabutongo, Ocoboro	Leaves and shoots	18	Bundles	290	8 - 25	16.2
Amaranthus hybridus subsp. *Cruentus* (L.) Thell.*	Omujuiga	Leaves and shoots	8	Bundles	72	5 - 13	9.0
Amaranthus lividus L.*	Bwora, Mboog'ennene	Leaves and shoots	12	Bundles	122	5 - 15	10.2
Amaranthus spinosus L.*	Doodo y'amahwa	Leaves and shoots	20	Bundles	218	5 - 15	10.9
Basella alba L. ##	Enderema	Leaves and shoots	20	Heaps	288	5 - 25	14.4
Bidens pilosa L.#	Obukurra	Leaves and shoots	10	Bundles	55	3 - 08	5.5
Borassus aethiopum Mart. †	Ekituugu, Tugo	Fruits	15	Fruits	172	5 - 15	11.5
Canarium schweinfurthii Engl.††	Empafu	Fruits	18	Plastic mugs	255	8 - 20	14.2
Cleome gynandra L.*	Eyobyo	Leaves and shoots	27	Bundles	376	8 - 20	13.9
Cleome hirta (Klotzsch) Oliv.*	Akayobyo akasajja	Leaves and shoots	13	Bundles	107	5 - 15	8.2
Corchorus tridens L.**	Eteke	Leaves and shoots	14	Bundles	150	5 - 15	10.7
Corchorus trilocularis L.**	Otigo lum	Leaves and shoots	14	Bundles	119	5 - 13	8.5
Crotalaria ochroleuca G.Don*	Kumuro, Alaju	Leaves and shoots	17	Bundles	191	5 - 15	11.2
Hibiscus acetosella Welw. *ex* Hiern*	Makawang kulo, Gwanya	Leaves and shoots	15	Bundles	177	8 - 15	11.8
Hibiscus sabdariffa L.*	Bamya, Ekikenke	Leaves and shoots	32	Bundles	635	10 - 35	19.8
Hyptis spicigera Lam.	Amola, Lamola	Seeds	8	Kg	51	3 - 10	6.4
Mondia whitei (Hook.f.) Skeels Ω	Omurondwa	Roots	12	Pieces	283	15 - 35	23.6
Phaseolus lunatus L.	Amaijalero, Okuku	Fresh seeds	16	Kg	124	3 - 20	7.8
Phaseolus lunatus L.ΩΩ	Amaijalero, Okuku	Fresh mature seeded pods	10	Heaps	88	6 - 16	8.8
Physalis peruviana L.♀	Ntuutu	Fruits	18	Heaps	287	10 - 25	15.9
Solanum anguivi Lam.♀♀	Obuhuruhuru, Katukuma	Fruits	26	Heaps	395	10 - 20	15.2
Solanum lycopersicum L.®	Bunyanya bunyoro	Ripe fruits	17	Heaps	217	8 - 20	12.8
Solanum macrocarpon L.®	Bugorra	Unripe fruits	10	Heaps	98	5 - 15	9.8
Solanum macrocarpon L.*	Bugorra	Young leaves	8	Bundles	83	7 - 18	10.4
Solanum nigrum L.*	Enswiga	Leaves	24	Bundles	459	10 - 30	19.1
Tamarindus indica L.®®	Mukoge	Fruits	22	Heaps	293	5 - 20	13.3
Vernonia amygdalina Del.#	Kibirizi	Leaves and shoots	13	Bundles	160	8 - 20	12.3
Vitex doniana Sweet††	Muhomozi, Owelo	Fruits	11	Plastic mugs	109	3 - 15	9.9

Table 3. Contd.

Conventionally cultivated food plants							
Abelmoschus esculentus (L.) Moench.♀♀	Okra	Fruits	27	Heaps	270	5-20	10
Brassica oleracea var capitata. L. (Alef.)ϴ	Cabbages	Head	42	Heads	689	10 - 30	16.4
Mangifera indica L.¥¥	Mangos	Fruits	50	Heaps	1100	15 - 35	22.7
Passiflora edulis Sims.¥	Passion fruits	Fruits	35	Heaps	534	8-25	15.5
Phaseolus vulgaris L.	Common beans	Fresh seeds	45	Kg	653	9 - 18	14.5
Sesamum indicum Linn.	Simsim	Seeds	39	Kg	531	5-22	13.6
Vigna unguicullata (L.)Walp*	Cowpeas	Leaves	30	Bundles	537	15 - 25	17.9

¥1 Heap = 8-15 fruits; *1 bundle = 300-450 g; **1 bundle = 200-300 g; #1 bundle = 300-500 g; ##1 heap = 250-400 g; †1 fruit = 1.4-1.6 kg; ††1 plastic mug (cup) = 0.5 kg; Ω1 piece of *M. whytei* root ≈ 0.01-0.02 m in diameter and 0.3-0.4 m in length; ΩΩheap = 500-800 g; ♀1 heap = 150-300 g; ♀♀1 heap = 200-400 g; ®1 heap = 200-400 g; ®®1 heap = 300-400 g; ¥¥1 heap = 300-600 g; ϴ1 head = 400-1200 g.

indicated that WSWFPs were not the primary product sold by traders that deal in WSWFPs. Many traders sold WSWFPs in combination with conventional farmed products such as tomatoes, okra, oranges, mangoes, banana of different types, cabbages and beans. Similar observation was also reported by Karaan et al. (2005) who noted that traders of wild fruits such as *Vitex mombassae, Vitex doniana* and *Strychnos cocculoides* in Tanzania, Zimbabwe and Zambia were engaged primarily in selling farmed products such as tomatoes, pumpkins, lemons and even fish. Therefore, any attempt to promote trade in WSWFPs should perhaps, be integrated into those strategies aimed at promoting trade of conventional crops.

Transportation of WSWFPs to market location

In marketing, products have to undergo a series of transfers or exchanges from one hand to another before finally reaching the consumer. This movement is always facilitated by transport. Transportation thus plays an important role in market conduct and performance as it helps in assembling and dispersing the products to the market locations, thereby linking the producers/gatherers with the buyers who might be located at different places (Jain, 2009). Availability of cheap transport is therefore, a key factor that influences the market conduct and performance of most traded goods (Kotler and Armstrong, 1999). In the present study, walking was by far the most predominant mode of transport for traded WSWFPs to the market locations. Generally, women and girls carry the harvested produce on top of their heads by walking while men especially the mobile hawkers largely carry them in polythene or locally made baskets bags by handles. Although, walking plays a considerable role in marketing of WSWFPs in this area, this mode of transport is often restricted by weight carried or distance to the market.

A few people also use bicycles to deliver the stocks to the markets. Bicycles are seldom used for a number of reasons. The main reason being that most men who own bicycles cannot entrust them with the wives who are the main traders of WSWFPs. Besides, the 2005-2006 Uganda National and Housing Survey (Uganda Bureau of Statistics, 2006) showed that only 33.4% of the households in western Uganda possessed bicycles. Therefore, most women depend on the cheapest form of transport to the markets, which is walking. None of the traders in this locality reported using the public transport means such as taxis to deliver their stocks to the market. Similar findings were reported by Kadzere et al. (1998) who noted that delivery of wild fruits to the market in remote areas of southern Africa was predominantly by foot (walking) besides occasional use of ox-carts, bicycles and buses. Because of the meagre returns from the sale of wild food plants, gatherers would not want to rely on costly modes of transport to deliver their stocks to the market places.

Price setting and market information for WSWFPs

Pricing is one of the main elements of the marketing mix and is an important strategic issue in market conduct and performance because it affects products positioning and sales (Tomek and Robinson, 1990; Panigyrakis, 1997). There are generally three basic types of pricing strategies:

Table 4. Selling price and market demand of commonly sold WSWFPs in Bunyoro-Kitara Kingdom.

WSWFPs sold	Local names	Parts sold	Market price (Ugandan Shillings)[@]	Average price (±StDev)	SEM	Market demand
Aframomum alboviolaceum (Ridley) K.Schum.[¥]	Amasaasi, Ocao	Fruits	500 - 1000 heap^{-1}	641.7 (202.1)	58.3	High
Aframomum angustifolium (Sonnerat) K.Schum.[¥]	Amatehe, Kongo amor	Fruits	400 - 800 heap^{-1}	558.8 (127.8)	31	High
Amaranthus dubius Mart. *ex* Thell.*	Doodo	Leaves and shoots	200 - 500 bundle^{-1}	345.7 (103.9)	17.6	Very high
Amaranthus graecizans L.*	Nyabutongo, Ocoboro	Leaves and shoots	100 - 300 bundle^{-1}	211.1 (75.8)	17.9	Low
Amaranthus hybridus subsp. *Cruentus* (L.) Thell.*	Omujuiga	Leaves and shoots	300 - 400 bundle^{-1}	337.5 (51.8)	18.3	Very high
Amaranthus lividus L.*	Bwora, Mboog'ennene	Leaves and shoots	200 - 400 bundle^{-1}	308.3 (79.3)	22.9	low
Amaranthus spinosus L.*	Doodo y'amahwa	Leaves and shoots	100 - 300 bundle^{-1}	215.0 (74.5)	16.7	Low
Basella alba L.[##]	Enderema	Leaves and shoots	300 - 600 heap^{-1}	440.0 (80.3)	19.7	High
Bidens pilosa L.[#]	Obukurra	Leaves and shoots	100 - 200 bundle^{-1}	160.0 (51.6)	16.3	Very low
Borassus aethiopum Mart.[†]	Ekituugu, Tugo	Fruits	500 - 1000 fruit^{-1}	620.0 (178.1)	46	High
Canarium schweinfurthii Engl.[††]	Empafu	Fruits	400 - 500 plastic mug^{-1}	433.3 (45.4)	10.7	High
Cleome gynandra L.*	Eyobyo	Leaves and shoots	300 - 500 bundle^{-1}	363.0 (79.2)	15.2	High
Cleome hirta (Klotzsch) Oliv.*	Akayobyo akasajja	Leaves and shoots	200 - 500 bundle^{-1}	346.2 (112.7)	31.2	Low
Corchorus tridens L.**	Eteke	Leaves and shoots	100 - 300 bundle^{-1}	200.0 (78.4)	21	Low
Corchorus trilocularis L.**	Otigo lum	Leaves and shoots	100 - 300 bundle^{-1}	228.6 (82.5)	22.1	Low
Crotalaria ochroleuca G.Don*	Kumuro, Alaju	Leaves and shoots	300 - 500 bundle^{-1}	370.6 (84.9)	20.6	Low
Hibiscus acetosella Welw. *ex* Hiern*	Makawang kulo, Gwanya	Leaves and shoots	400 - 700 bundle^{-1}	493.3 (88.4)	22.8	Very high
Hibiscus sabdariffa L.*	Bamya, Ekikenke	Leaves and shoots	300 - 500 bundle^{-1}	368.7 (73.8)	13	High
Hyptis spicigera Lam.	Amola, Lamola	Seeds	1000 - 1600 kg^{-1}	1187.5 (241.6)	85.4	High
Mondia whitei (Hook.f.) Skeels[Ω]	Omurondwa	Roots	100 - 200 piece^{-1}	158.3 (46.9)	13.5	High
Phaseolus lunatus L.	Amaijalero, Okuku	Fresh seeds	600 - 800 kg^{-1}	675 (85.6)	21.4	Low
Phaseolus lunatus L.[ΩΩ]	Amaijalero, Okuku	Fresh mature seeded pods	300 - 500 heap^{-1}	370 (82.3)	26	Low
Physalis peruviana L.[♀]	Ntuutu	Fruits	200 - 400 heap^{-1}	305.6 (72.5)	17.1	High
Solanum anguivi Lam.[♀♀]	Obuhuruhuru, Katukuma	Fruits	200 - 300 heap^{-1}	265.38 (48.5)	9.51	High
Solanum lycopersicum L.[®]	Bunyanya bunyoro	Ripe fruits	100 - 400 heap^{-1}	247.1 (80.0)	19.4	Low
Solanum macrocarpon L.[®]	Bugorra	Unripe fruits	200 - 500 heap^{-1}	380.0 (91.9)	29.1	Low
Solanum macrocarpon L.*	Bugorra	Leaves and shoots	200 - 300 bundle^{-1}	262.5 (51.8)	18.3	Low
Solanum nigrum L.*	Enswiga	Leaves	200 - 400 bundle^{-1}	316.7 (70.2)	14.3	Very high
Tamarindus indica L.[®®]	Mukoge	Fruits	100 - 300 heap^{-1}	231.8 (71.6)	15.3	Low
Vernonia amygdalina Del.[#]	Kibirizi	Leaves and shoots	200 - 300 bundle^{-1}	261.5 (50.3)	14	Very low

Table 4. Contd

Vitex doniana Sweet[††]	Muhomozi, Owelo	Fruits	300 - 400 plastic mug^{-1}	363.6 (50.5)	15.2	High
Conventionally cultivated food plants						
Abelmoschus esculentus (L.) Moench.[♀♀]	Okra	Fruits	200 - 600 heap^{-1}	355.5 (98.4)	22.3	High
Brassica oleracea var capitata. L. (Alef.)[Θ]	Cabbages	Head	300 - 700 head^{-1}	489.9 (67.8)	15.1	High
Mangifera indica L.[¥¥]	Mangos	Fruits	100 - 500 heap^{-1}	365.0 (70.1)	28.5	Very low
Passiflora edulis Sims.[¥]	Passion fruits	Fruits	400 - 1000 heap^{-1}	600.9 (157.3)	42.6	High
Phaseolus vulgaris L.	Common beans	Fresh seeds	700 - 1200 kg^{-1}	845.4 (100.5)	33.4	High
Sesamum indicum Linn.	Simsim	Seeds	1200 - 2200 kg^{-1}	1670.6 (125.8)	38.8	Very high
Vigna unguicullata (L.)Walp*	Cowpeas	Leaves	200 - 500 bundle^{-1}	315.3 (49.4)	17.7	Low

[¥]1 Heap = 8-15 fruits; *1 bundle = 300-450 g; **1 bundle = 200-300 g; [#]1 bundle = 300-500 g; [##]1 heap = 250-400 g; [†]1 fruit = 1.4-1.6 kg; [††]1 plastic mug (cup) = 0.5 kg; [Ω]1 piece of *M. whytei* root ≈ 0.01-0.02 m in diameter and 0.3-0.4 m in length; [ΩΩ]heap = 500-800 g; [♀]1 heap = 150-300 g; [♀♀]1 heap = 200-400 g; [®]1 heap = 200-400 g; [®®]1 heap = 300-400 g; [¥¥]1 heap = 300-600 g; [Θ]1 head = 400-1200 g; [@]USD1 = 2010 Uganda shilling (UGX).

pricing based on the total cost incurred, pricing based on demand and pricing based on competition (Panigyrakis, 1997). However, information garnered from this study shows that there are no definite or formal mechanisms of setting prices of WSWFPs traded by the vendors. Most traders relied on daily market demands to determine the price upon which they sell their products. Others considered time and risks involved in gathering process, price information of the substitute food plant, price information on WSWFPs from other areas and markets, knowledge of the past season prices or the costs incurred from their suppliers. However, in all these cases, price fixing follows a sort of action-reaction sequence, generally beginning with the interested buyer asking for the price, followed by the naming of a price by the trader. Based on this, the bargaining process would begin until a final price, which the buyer is ready to pay, is reached. So even after a trader has set a fair market price, negotiation with buyers would sometimes lower the price further.

These findings are similar to the situation in most southern African countries, where available information (Ham et al., 2008) indicates that there is no defined mechanism for setting market prices of wild edible plants especially the indigenous fruits. Similarly, in west and central Africa, there is no consistent mechanism (Tchoundjeu et al., 2008) upon which traders selling wild food plants determine the market price of their stocks; some traders, for instance, consider the customers affordability to buy the product. In that case, the prices are set depending on the sellers' assessment of the buying power of individual customers. A mere look at the customer would sometimes help sellers to gauge how much to charge them.

However, efforts to trade in WSWFPs can only thrive better in an environment where market information is freely available. As discussed by Shepherd (1997), market information can help traders, farmers and gatherers to decide whether they should sell their products immediately or whether storage is necessary or not; where and whom to sell; whether to add value to their products or not; and to know if there is more demand for one product or another. Such information can be used to check whether the prices the traders get are reasonable. Shortage of market information is disadvantageous for traders, farmers, and or gatherers in negotiating with buyers and therefore, weakens their bargaining power (Poole, 2001). Therefore, the selling price of traded wild food plants could be improved based on available and reliable price information. Unfortunately, in the present study, market information system for WSWFPs was largely rudimentary and undeveloped. Traders and gatherers rely mainly on information from fellow traders as well as their customers to make market decisions. There is very little market information passed on to traders and gatherers by public and private media as well as the service providers.

Estimated volumes, selling price and profit margins of traded WSWFPs

Generally, findings from the present study indicated that volumes of WSWFPs weekly traded in the markets are still low, as compared to some conventionally cultivated food crops. The low weekly volumes of WSWFPs such as

Table 5. Average weekly profit margins (Ugandan shillings) for the traded WSWFPs during the harvest seasons in Bunyoro-Kitara Kingdom.

WSWFPs sold	Local names	Parts sold	Average quantity/trader	Average price/unit	Average cost incurred/ trader*	Average income/trader	Average profit/trader@
Aframomum alboviolaceum (Ridley) K.Schum.	Amasaasi, Ocao	Fruits	8.8 heaps	641.7	455.1	5647.0	5191.9
Aframomum angustifolium (Sonnerat) K.Schum.	Amatehe, Kongo amor	Fruits	11.6 heaps	558.8	567.9	6482.1	5914.2
Amaranthus dubius Mart. *ex* Thell.	Doodo	Leaves and shoots	16.3 bundles	345.7	1152.4	5634.9	4482.5
Amaranthus graecizans L.	Nyabutongo, Ocoboro	Leaves and shoots	16.2 bundles	211.1	1097.8	3419.8	2322.0
Amaranthus hybridus subsp. *Cruentus* (L.) Thell.	Omujuiga	Leaves and shoots	9.0 bundles	337.5	520.3	3037.5	2517.2
Amaranthus lividus L.	Bwora, Mboog'ennene	Leaves and shoots	10.2 bundles	308.3	458.6	3144.7	2686.1
Amaranthus spinosus L.	Doodo y'amahwa	Leaves and shoots	10.9 bundles	215.0	470.1	2343.5	1873.4
Basella alba L.	Enderema	Leaves and shoots	14.4 heaps	440.0	925.9	6336.0	5410.1
Bidens pilosa L.	Obukurra	Leaves and shoots	5.5 bundles	160.0	115.5	880.0	764.5
Borassus aethiopum Mart.	Ekituugu, Tugo	Fruits	11.5 fruits	620.0	1380.8	7130.0	5749.2
Canarium schweinfurthii Engl.	Empafu	Fruits	14.2 plastic mugs	433.3	1230.5	6152.9	4922.4
Cleome gynandra L.	Eyobyo	Leaves and shoots	13.9 bundles	363.0	751.7	5045.7	4294.0
Cleome hirta (Klotzsch) Oliv.	Akayobyo akasajja	Leaves and shoots	8.2 bundles	346.2	422.3	2838.8	2416.5
Corchorus tridens L.	Eteke	Leaves and shoots	10.7 bundles	200.0	390.6	2140.0	1749.4
Corchorus trilocularis L.	Otigo lum	Leaves and shoots	8.5 bundles	228.6	334.2	1943.1	1608.9
Crotalaria ochroleuca G.Don	Kumuro, Alaju	Leaves and shoots	11.2 bundles	370.6	669.6	4150.7	3481.1
Hibiscus acetosella Welw. *ex* Hiern	Makawang kulo, Gwanya	Leaves and shoots	11.8 bundles	493.3	1078.5	5820.9	4742.4
Hibiscus sabdariffa L.	Bamya, Ekikenke	Leaves and shoots	19.8 bundles	368.7	1356.3	7300.3	5944.0
Hyptis spicigera Lam.	Amola, Lamola	Seeds	6.4 kg	1187.5	845.8	7600.0	6754.2
Mondia whitei (Hook.f.) Skeels	Omurondwa	Roots	23.6 pieces	158.3	296.7	3735.9	3439.2
Phaseolus lunatus L.	Amaijalero, Okuku	Fresh seeds	7.8 kg	675	1010.4	5265.0	4254.6
Phaseolus lunatus L.	Amaijalero, Okuku	Fresh mature seeded pods	8.8 heaps	370	600.7	3256.0	2655.3
Physalis peruviana L.	Ntuutu	Fruits	15.9 heaps	305.6	790.5	4859.0	4068.5
Solanum anguivi Lam.	Obuhuruhuru, Katukuma	Fruits	15.2 heaps	265.4	875.6	4033.8	3158.2
Solanum lycopersicum L.	Bunyanya bunyoro	Ripe fruits	12.8 heaps	247.1	785.5	3162.9	2377.4
Solanum macrocarpon L.	Bugorra	Unripe fruits	9.8 heaps	380.0	650.0	3724.0	3074.0
Solanum macrocarpon L.	Bugorra	Young leaves	10.4 bundles	262.5	415.3	2730.0	2314.7

Table 5. Contd

Solanum nigrum L.	Enswiga	Leaves	19.1 bundles	316.7	705.8	6049.0	5343.2
Tamarindus indica L.	Mukoge	Fruits	13.3 heaps	231.8	425.5	3082.9	2657.4
Vernonia amygdalina Del.	Kibirizi	Leaves and shoots	12.3 bundles	261.5	510.9	3216.5	2705.6
Vitex doniana Sweet	Muhomozi, Owelo	Fruits	9.9 plastic mugs	363.6	488.2	3599.6	3111.4

* Costs incurred included mainly market dues and packing materials (polythene bags). Transport expenses were excluded in the cost computation because only 4% of the traders incurred transport expenses in the form of hired bicycles. [@]USD1 = 2010 Uganda shilling (UGX).

B. pilosa and *V. doniana* could perhaps, be attributed to low demand, low purchasing power and general negative public perceptions of WSWFPs or lack of trade promotion in wild food plants (Sharma et al., 1992). However, there is some light at the end of the tunnel. The volumes of some traded species such as *H. sabdariffa*, *S. nigrum*, *A. dubius*, *C. gynandra*, *P. peruviana*, *B. alba*, *T. indica* and *M. whitei* traded weekly in the markets are reasonably high and are potential sources of cash incomes to the gatherers and traders. In Sikkim Himalaya, Sundriyal and Sundriyal (2004) also found that volumes of wild edible plants traded in three weekly markets of Gangtok, Singtam and Namchi were generally low with few exceptions of species such as *Spondias axillaris*, *Dendrocalamus hamiltonii*, *Urtica dioica, Diplazium esculentum*, *Eleagnus latifolia* and *Machilus edulis* that had very high weekly and annual volumes marketed. Similarly, Shanley et al. (2002) reports low volumes of traded wild edible plants in Capim region of Brazil with exception of *Caryocar villosum*, *Platonia insignis* and *Endopleura uchi* fruits, which were found to be traded in sufficient quantities, and whose high volumes were attributed to their high demand for flavouring ice cream, yogurt, jams and juice by the natives. Therefore, one can deduce that WSWFPs sold in large quantities are those that command high demands, otherwise most traders prefer selling small quantities of different WSWFPs, as they are well aware of their low market demand.

Concerning market prices, the results of the present study revealed that the selling prices of the traded WSWFPs varied according to species marketed and unit of measurements. As compared to conventional food plants, the prices of most traded WSWFPs were generally alike. Some WSWFPs such as *H. acetosella*, *B. alba*, *H. spicigera* (seeds), *P. lunatus* (fresh seeds), *A. alboviolaceum* and *A. angustifolium*, *B. aethiopum* (fruits) had higher selling prices per unit measurement as compared to the related conventional cultivated food plants traded in same locality. Their high market prices could perhaps, be attributed to their perceived nutritional and medicinal properties. Market demands of other traded WSWFPs, were noted to be rising either due to the same reason as above and other factors such as the repeated occurrence of drought in the study area that often results in crop failure hence heavy reliance on wild resources by poor households. Elsewhere, there is a report that some traded wild edible food plants command higher market prices. For instance, in Sikkim Himalaya region of India, most traded wild food plants (*Tupistra nutans*, *Dendrocalamus hamiltonii*, *Diploknema butyracea* and *Eleagnus latifolia*) had very high market prices per unit measurement, accredited to mainly excessive labour costs involved in the marketing process, high demand as well as well as higher income of the people in the region (Sundriyal and Sundriyal, 2004). Thus, increasing demand and prices of WSWFPs especially in the context of the present study could perhaps, be considered an opportunity to promote sustainable utilization and management of edible wild food plants.

Marketing margin is an indicator of the profitability of WSWFPs marketing. The finding from this study indicated that the average weekly profit yielded from the trade of various WSWFPs were low to moderate and ranged from UGX 764.5 to 6754.2 (USD 0.38 to 3.36). High return came from few species such *H. spicigera, H. sabdariffa*, *A. angustifolium, B. aethiopum, B. alba*, *S. nigrum*, *A. alboviolaceum* and *C. schweinfurthii.* According to most traders, profit from WSWFPs would be much higher, if it were not because they have to sell these plants at a low price. Besides, the rather low marketing margins could have probably stemmed from the focus on low-income local markets, where consumer spending powers were limited. This implies that any attempt to add value or increase the marketing margin must be associated with targeting higher income consumers who are able to compensate for this.

Very little costs ranging from UGX 115.5 to 1380.8 (USD 0.06 to 0.69) were incurred by the trader in the marketing process. These costs included mainly market dues and packing materials (polythene bags). Transport expenses

were excluded in cost computation because only 4% of traders incurred it. Similar to Dixon et al. (1989), it was not possible to compute time and labour costs involved in gathering process. In view of these costs, it is plausible to say that the profit margin would have been very low if the time and labour employed in gathering process were taken into account. However, given the very poor economic status of most traders of WSWFPs and the fact that majority of them survive on less than 1 USD a day, even a small amount of earnings, which may only be payment for the labour and time involved in the gathering processing, has a significant value, as it helps to fulfil some subsistence requirements.

Conclusions

Out of the 62 WSWFPs belonging to 31 botanical families documented as edible in the Bunyoro-Kitara Kingdom (Agea, 2010), about 47% belonging to 12 botanical families were traded in formal and informal markets within the study area. Market information system for WSWFPs was largely rudimentary and undeveloped, and traders rely mainly on information from fellow traders as well as their customers to make market decisions. Traded WSWFPs were primarily delivered to markets on foot and using bicycles. Currently, there are no definite or formal mechanisms of setting prices of traded WSWFPs; most traders relied on the daily market demand, time and risks involved in gathering process, information of the price of substitute food and prices from other areas, knowledge of the past seasons' prices, and on the costs incurred from the suppliers. With exception of few species such as *P. peruviana* and *B. alba*, weekly volumes of traded WSWFPs were low as compared to most conventional food crops. On the other hand, prices of most traded WSWFPs were generally similar to those of alternative conventional food plants marketed in the area. Some WSWFPs like *H. acetosella*, *B. alba* and *H. spicigera* (seeds), had higher market prices per unit measurement as compared to the related conventional food plants. Average weekly profits yielded from the trade of various WSWFPs were moderate and ranged from UGX 764.5 to 6754.2 (USD 0.38 to 3.36). The highest return came from species such as *H. spicigera, H. sabdariffa*, *A. angustifolium, B. aethiopum, B. alba*, *S. nigrum*, *A. alboviolaceum* and *C. schweinfurthii.*

Recommendations

In light of the findings and the conclusions presented above, there should be a deliberate attempt to encourage both intra and inter-networking among the traders and gatherers dealing on WSWFPs. The importance of networking cannot be overemphasized. It is through this process that the traders and gatherer of WSWFPs can find where demand for certain products is high. They can also discover the going prices for various products. They can learn the latest profitable marketing methods and production practices. Traders should also be encouraged to price their products based not only on cost and demand or size of the market, but also on the economic and emotional value to customers. This means that, in addition to some other factors that associated into price determination, the traders should attempt to find out the economic and emotional value of his/her product to the customers. A trader, who wishes to market his/her product successfully, should also be able to have good customer relations. Therefore, the attributes and motivations that underlie the market demand and the current appeal of WSWFPs documented in this study should be explored further. Those attributes and motivations could be useful as selling gimmicks by traders to attract more buyers. At the moment, traders merely employ the art of display (arranging products in an interesting and persuasive manner) and persuasion (calling customers with familiar names, such as mother, father, uncle, sister, brother and auntie). It is equally important to identify and understand the psychology of consumers when they purchase and consume products of this nature. These would differ in different market segments. Therefore, consumer studies must be undertaken to gather the relevant information followed by testing and tasting studies.

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