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Baraka Beekeeping Development Unit/ Self Help Development International (SHDI)

'A study of the beekeeping sector in Kenya June 2001 - January 2002'

January 2002

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At Baraka to David Mungai Kamau who assisted greatly in data collection and analysis. Also Cornelius Kasis for his assistance in producer data collection.

Last but not least we would like to thank all the various people who contributed their knowledge and time to the study to make it a success. We hope that through this study, and the follow-on intervention, that we will be able to make a positive contribution for the benefit of all, to the development of beekeeping in this country.

Tom Carroll,
Manager,
Beekeeping Development Unit,
Baraka Agricultural College,

January 2002

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EXECUTIVE SUMMARY

The Beekeeping Development Unit (BDU) of Baraka Agricultural College is involved in training farmers on beekeeping, bee equipment supply and assisting to link farmer's associations with markets for their bee products. With the financial assistance of Self Help Development International (SHDI) the BDU have carried out this study of the beekeeping industry in Kenya.
This study is being used to develop an effective beekeeping outreach programme for January 2002 to be submitted to SHDI for funding.

A detailed analysis of secondary information was carried out from information available locally and with the assistance of the International Bee Research Association library in UK. Cross sections of concerned parties have been targeted during this study in order interpret the situation in the light of their interests and activities. Selective samplings of producers and producer groups in targeted regions and processors and packers were interviewed. Random and non-random sampling of consumers, retailers, hotels, industrial buyers and wholesalers was undertaken in Nairobi and other towns. Judgment sampling of key informants from the industry was undertaken and meetings were held with K-REP regarding credit facilities & opportunities. A workshop was held with key stakeholders in the industry and another with project planners to devise the project with a set of objectives that will be accepted and supported by all concerned. A major international beekeeping conference was attended in South Africa and the views beekeeping development experts around the world incorporated.

In summary the key findings of the producer survey indicate that the majority of beekeepers still use traditional systems of beekeeping. Those that do use modern systems often do so without beesuits and smokers which tends to negate the advantages of modern hives. Beekeepers lack basic skills on bee management, honey harvesting, processing and handling. The majority of beekeepers have no access to extension services promoting modern beekeeping and have little training. There is little knowledge of the value of bee products other than honey. On the equipment side research needs to be carried out on different modifications to the Kenya top bar hive to make it suitable to the various climatic zones in Kenya.

Key findings of the processor and packer survey indicate that honey markets are under developed due to low volumes and that volumes and quality have not been reached for export. Processors often lack skills and equipment for proper honey handling. Consumers are uneducated about honey, it's properties and uses and fake honey, adulteration and sabotage are a great threat to the development of the industry. Rural markets and inner city markets are currently not being adequately targeted and suppliers do not closely monitor product sales. Most packaging is sourced locally and can be unattractive and unreliable. Furthermore crystallization is a recurrent problem and availability of honey can be erratic.

Key findings of the hotel/industrial buyer survey also indicate that the market for local honey is underdeveloped despite honey being used in food preparation, alcohol preparation, medicines and confectionary. Most buyers purchase honey from traders and all use locally available honey from Kenya or Tanzania but prices offered by industrial buyers tends to be very low. Most industrial buyers purchase by the kilo on a monthly basis. Again a lot of local honey is adulterated or fake but most buyers do random testing of deliveries and wish to see some form of certification. Buyers are interested in negotiating with new suppliers but will consider availability, taste, cost, quality and colour and require honey to be transported in sealed, clean containers.

Key findings of the retailers survey indicates that most honey is bought through suppliers and that the majority of honey for sale originates from Australia, with Wescobee Honey being the most common brand for sale. Most respondents stated quality as being the highest purchasing

consideration with the leading local brand being Pure Natural Honey from Bastonde Enterprises. Most retailers stated that they had no problem with the supply and availability of honey and that the demand for honey is increasing.

Key findings of the consumer survey indicates that 60-70% of Kenyans consume honey and the market for honey can be segmented into three broad segments depending on social class. Consumers generally prefer liquid honey (that does not crystallize).

A meeting of key stakeholders agreed that the main problems to be addressed in order to develop the apiculture industry include:

- Inadequate/low supply caused by inadequate training, misinformed technology and producer fragmentation. These are further perpetuated by ineffective extension services (public and private) and a lack of coordination between stakeholders.
- Adulteration of honey, knowledge of crystallization cause by a general lack of consumer awareness. This is further perpetuated by a lack of regional/ national goals and policy framework re production, markets and quality standards.
- Inadequate marketing structures and channels caused by a lack of awareness re marketing and promotion.
- Theft from hives.

It was agreed by the majority of the participants that credit was not a solution to any of the identified problems. It was also agreed that in order to address the core problems facing the industry the following objectives/results/activities should be included when developing the proposed project for submission to SHDI.

Using a training/appropriate technology strategy:
Increase honey supply through technology improvement, beekeepers training and improved stakeholder coordination. This may be achieved through service improvement and training of CBOs, extension workers and the development of local capacity. Information must be provided and exchanged on income opportunities and technical issues.

Using a marketing/promotion/awareness strategy:
- Improved marketing structures/ channels through improved processing and packaging.
- Honey use promoted through establishing a honey exchange or board, exchanging information between producers and buyers and consumer awareness creation through marketing activities.
- Standardized honey quality by enforcing policy for standards control and consumer awareness creation.

Using the above information a meeting of project planners developed a log frame setting out the intervention logic for the proposed project *(annex 7).* At this point it is not recommended that the project provide beekeepers with access to credit. Nevertheless a comprehensive approach has been developed in conjunction with K-REP and is recommended should project planners choose to include credit as a component in future (*annex 8*).

Recommendations for project design:

Restrict the outreach of the extension work of the project and selecting pilot districts and farmers who are currently networked into groups, associations or cooperatives. A baseline survey must be implemented and a comprehensive database developed for project use.
For an integrated approach and increased outreach/impact strategic partnerships should be developed. It is recommended that the project also develop specific partner activities that will strengthen the capacity of Kenya Beekeepers Association (KBA).

The core effort of the project should focus on improving the skills of beekeepers and providing practical training in the field (working with bees). The majority of beekeepers have no help at present. Also the project should focus on improving the skills of those extension workers already in contact with producers so that they can become more effective.

The project must include producer capacity building components such as: workshops on group formation, opportunity workshops, developing networks & group affiliations, developing a resource center for beekeepers at Baraka and implementing an exchange programme. Producers should be trained in quality requirements and partners used for extension work and the monitoring of product quality. Training in quality and grading with demonstrations and training on site is also recommended. Bee management as a profitable business should be promoted along with appropriate technologies.

The project may also consider pilot approaches to resolve problems of honey supply such as collection centers, delivery to door/ bulking, bulking/collection or bulking through intermediary. Containers for honey collection must also be made available to producers.
Under exploited local and regional markets should be developed alongside opportunities for international sales. Hotels and hotel chains and wholesale bulk buyers can be approached. A campaign to target smaller estate supermarkets in urban locations and a campaign to target rural markets should be developed. It is recommended that the project liaise with importers with an aim of offering a wider choice of packaging materials. It may also be possible to work with distributors to develop local and regional markets. Organic certifications could also be obtained to assist with market development. It is important to actively monitor and research the movement of product sales.
Opportunities should also be explored to develop products for markets such as smaller cheaper packaging for up country sales, tourist/gift products, comb honey, beeswax and beeswax products and bee pollen.
A honey campaign should be developed including high profile media honey promotion, point of sale promotions for honey and consumer education/ public awareness. Local honey use should be promoted by working with partners to develop videos and brochures and possible working with KBA to implement a Honey Expo.

2

BACKGROUND TO THE STUDY

Kenya, like other East African countries relies heavily on agriculture. Seventy-five percent (75%) of its people live in rural areas and sixty percent (60%) of these live in absolute poverty. Kenya is a nation of small holders with over five million small-scale farmers and pastoralists. Cut backs in public services and the free market philosophy of recent years have hit rural communities very hard. As this is unlikely to change, the future of such rural communities will depend on developing their capacities from within to meet the development challenge. Beekeeping is an opportunity to harvest and add value to a local resource (floral nectar) to generate wealth and employment and beat poverty. The Kenyan Ministry of Agriculture, Nairobi estimate that current production levels of honey are less than 1/5 the potential production levels which is estimated at 100,000 metric tones per annum. The sector is potentially worth US$100 million (111 Million Euros) or more to the Kenyan economy.

Beekeeping as an activity complements existing farming systems in Kenya. It is simple and relatively cheap to start, enhances the environment through the pollinating activity of bees, is completely sustainable, generates income and requires a very low level of inputs (land, labour, capital and knowledge in its simplest form). It is therefore an ideal activity for small scale, resource poor farmers. Traditionally, however, beekeeping in Kenya has been more akin to honey robbing rather than honey harvesting. Wild bee nests and traditional log hives are plundered through smoking the hives or killing many bees. Due to the lack of market knowledge and local outlets for honey, sales have usually been to producers of local liquor and the beekeeper is prone to exploitation by more knowledgeable middlemen. In Nairobi and other urban centers there is a strong market for high quality honey, and supermarket shelves are stocked with expensive imported honey from Mexico and Australia. These sell alongside locally produced varieties which tend to be adulterated, poor quality honey.

Over the years numerous attempts have been made to develop beekeeping in Kenya with limited success. This limited success is due in part to poor information on the realities of beekeeping from producer level right through to the market. What we want to understand through this study is where beekeeping in Kenya is now so that we can design effective interventions to develop it to where we would like it to be (realize the potential of the sector to beat poverty).

The initiative for this study draws on the experience of Baraka Agricultural College, which has been promoting beekeeping development in Kenya since 1974 by making and selling beekeeping equipment and training farmers. Since 1994 the college has been involved in marketing bee products. The Initiative also draws on the experience of previous employment of Baraka beekeeping staff in Kenya, Somalia, southern Sudan and Ethiopia training farmers on beekeeping/honey marketing.

This study is Phase one of a two Phase project. Phase 2, a proposal for a three year intervention project in Kenyan beekeeping, has been formulated from the results of this study.

Note: See annex 10 for further information on the work of Baraka Agricultural College

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THE RESEARCH

Research Methods:

The aim of the research is to understand the current state of beekeeping in Kenya. This information will then be used to design an effective 3 year beekeeping intervention to make a positive contribution in bridging the gap between where we are now and where we would like to be.

The approach to the research was to use the following methods of collecting information on the beekeeping industry:

1) Collect and analyse information from within the Baraka Agricultural College - internal information e.g. customer, student/training records, project reports etc.

2) Collect and analyse existing published information on beekeeping in Kenya and overseas - Kenya Government statistics, newspapers, business magazines, local and international beekeeping publications and books, international trade statistics, competitors catalogues, internet etc.

3) Fill the gaps in the above information by carrying out primary research on beekeeping/honey through the use of survey questionnaires (personal interviews and postal), key informant interviews, semi structured group interviews and SWOT analysis.

Factors considered in questionnaire design:

(a) General form

Questions were a mixture of structured and non-structured questions (open/half open and closed questions).

(b) Question sequence

Early questions are easy and the possibly difficult and embarrassing questions such as age and income are placed at the end of the questionnaire.

(c) Question formulation

Questions were formulated to avoid use of unfamiliar words and to avoid any embarrassment/loss of prestige amongst interviewees.

Before the actual survey began questionnaires was tested on a number of people similar to the categories of people in our target samples to ensure that they understood the questions. From this testing alterations were made to some questions to improve their clarity. It was also ensured that the interviewer understood the questions fully.

Factors considered in designing the survey samples

Problem analysis is crucial for planning. Primary information is required regarding; the strengths, weaknesses, opportunities and threats of the apiculture industry; technical, organizational and

financial problems faced by farmers; and marketing problems faced by processors and packers. Cross sections of concerned parties where targeted during the study in order to interpret the situation in the light of their interests and activities.

The cost of interviewing overlarge samples could outweigh the benefits that the research is intended to provide. Non probability (researcher controlled samples) sampling was used to save time and money. It is felt that the combination of research methods - combination of primary with secondary data and observation will give the BDU information which is accurate enough for its needs. Thus this research is not theoretical but practical.

Research actually carried out:

Secondary Information:

Secondary information was collected from Baraka Agricultural College files and those of other agencies (Govt. and NGOs visited during the study). Information and books were also purchased from the International Bee Research Association (IBRA) in Wales, UK. (*see annex 12*).

The collection of secondary information included a visit to the Apimondia conference in South Africa during October/November 2001 which included visits to South African bee farmers (*see annex 11*). Secondary information was analysed for its relevance, whether up to date or obsolete, it's accuracy and credibility.

Primary information:

Selective samplings of producer groups in targeted regions (high potential beekeeping areas surrounding Baraka) were interviewed using focus group discussions (incorporating semi structured group interviews, individual questionnaires and SWOT analysis). Groups for interview were selected on the basis of secondary information collected and in particular those who had purchased equipment from Baraka in the past ten years. Information was collected regarding: volumes, prices, quality, organizational effectiveness, marketing channels, intermediary support and technology (usefulness of Kenya top bar hives). Key groups included Lare Beekeepers, Ruai Bee Co-op, Kamegunyeti beekeeping group and Honey Care Africa. It is estimated that about 500 beekeepers were interviewed in groups during this study. In addition 75 individual beekeepers were also questioned in depth using the producer questionnaire in annex 4. Data collection also included actual observation of hives and bees of beekeepers being interviewed where possible.

Views of beekeepers and other key stakeholders were also solicited through the Kenyan media. A total of 74 beekeepers and other interested people responded by sending information for the study or soliciting further information/assistance on beekeeping. Some of these were sent relevant questionnaires as indicated in annex 2. *(See annex 2 for a list of respondents to the Nation newspaper advert).*

A postal survey was carried out where a total of 91 questionnaires were sent to different intermediaries (NGOs, Government agencies, Donors, Churches, Community Based Organisations). Out of the 91 questionnaires 41.75% replied, 2.2% did not reach the desired destination, while the remaining 56.05% were not replied to due to unknown reasons. Among the 38 respondents 84.7% work directly with beekeepers while the remaining 15.3% were either working with beekeepers sometime ago but no longer work with them or they don't work with beekeepers at all.

A selective sampling of processors and packers were interviewed using focus group discussions (incorporating semi structured interviews and SWOT analysis). Information was collected regarding: production, processes, packaging, distribution and marketing. Key visits included Baraka (BDU), Ruai Bee Co-op, Gatanza, Samburu Mountain Honey, Bondo honey refinery and Honey Care Africa.

Random and non-random sampling of retailers, hotels, industrial buyers and wholesalers was undertaken in Nairobi using semi structured interviews and SWOT analysis. Information was collected regarding: end customer/consumer, distribution channels, price, quality, volumes and payment terms. Key visits were made to Nakumatt, Uchumi, current Baraka honey outlets, Serena Hotels, Carnivore Restaurant, METRO, House of Manji, KWAL, BETA Healthcare and NAS.

A consumer survey was also carried out in Molo, Nakuru, Naivasha and Nairobi to collect information from a cross section of different Kenyans on their honey purchasing/consumption behaviour by:

- Sampling key people (judgement sampling) who are familiar with honey consumers and BDU customers e.g. The BDU distributor in Nairobi, supermarket owners and BDU's largest individual customers. These key informant Interviews it is hoped have given quality information and insights which can support other information collected.
- Sampling people who visited the BDU's stand at Nakuru Agricultural Show (a local agricultural show).
- Sampling people in Naivasha's high class suburb – 'Lakeview' to get the views of the wealthy Kenyans and Expatriates.
- Additional primary information on consumers was collected at Nairobi's posh shopping center known as the 'Sarit Center' during the 'FoodWorld2001' exhibition. Honey was given to consumers to sample on biscuits and consumer response/behaviour observed.

A total of 131 honey consumers were interviewed during the consumer survey.

Judgment sampling (sampling key people) of key informants from the industry was undertaken using semi structured interviews and SWOT analysis. Key visits were made to Kenya Beekeepers Association (KBA), Ministry of Agriculture, Natures Greens and Peter Patterson. A meeting was held with K-REP regarding credit facilities & opportunities. *Please refer to Annex 1 for a list of research contacts.*

A workshop was held with key stakeholders in the industry to arrive at a shared analysis of the problems. Problems where identified and a hierarchy established and a cause and effect relations diagram prepared. Possible objectives and possible choices of strategy were also analysed and a means-end relationship diagram prepared. *See annex 6 for a workshop photograph and a list of participants.*

A workshop was also held with project planners where the results of the above steps were combined providing a basis for devising a project with a set of objectives that will be accepted and supported by all concerned. Further analysis of objectives and strategy analysis was undertaken in preparation for project planning. A log frame matrix was developed setting out the interventions logic of the proposed project (*see annex 7*).

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KEY FINDINGS

A. Key findings of producer survey:

Results Summary:

- The majority of beekeepers are still using log or traditional type hives.
- Occupation rates of hives from the beekeepers surveyed were in the range 64 - 73% with the highest occupation rates being for traditional type hives. However low hive occupation rates is considered a threat to beekeeping.
- Beekeepers practice very little bee management but tend instead to manage hives.
- Most beekeepers interviewed have two honey seasons per year (one major and the other minor).
- 42% of beekeepers actively damage the quality of their honey harvested by boiling, smashing the combs or adding water. 46% sell in metal containers which further damages the honey being sold.
- 62% of beekeepers either throw away beeswax or leave this valuable commodity in the hives.
- 73% of beekeepers have had no formal training on beekeeping.
- 64% of beekeepers have no contact with extension agents promoting modern beekeeping. Of the 36% who have contact they rarely see these extension agents and receive minimal help from them.
- The majority of beekeepers are expanding their enterprises.
- The majority of beekeepers (70%) say there is a strong local demand for honey. Local honey prices are very high.
- Honey production is low and must be stimulated to increase volumes.
- Beekeeping is being threatened by the use of agro-chemicals, deforestation and drought, low hive occupation rates and theft.
- Groups structures allow access for training and bulking.

The Individual Producer Survey Results:

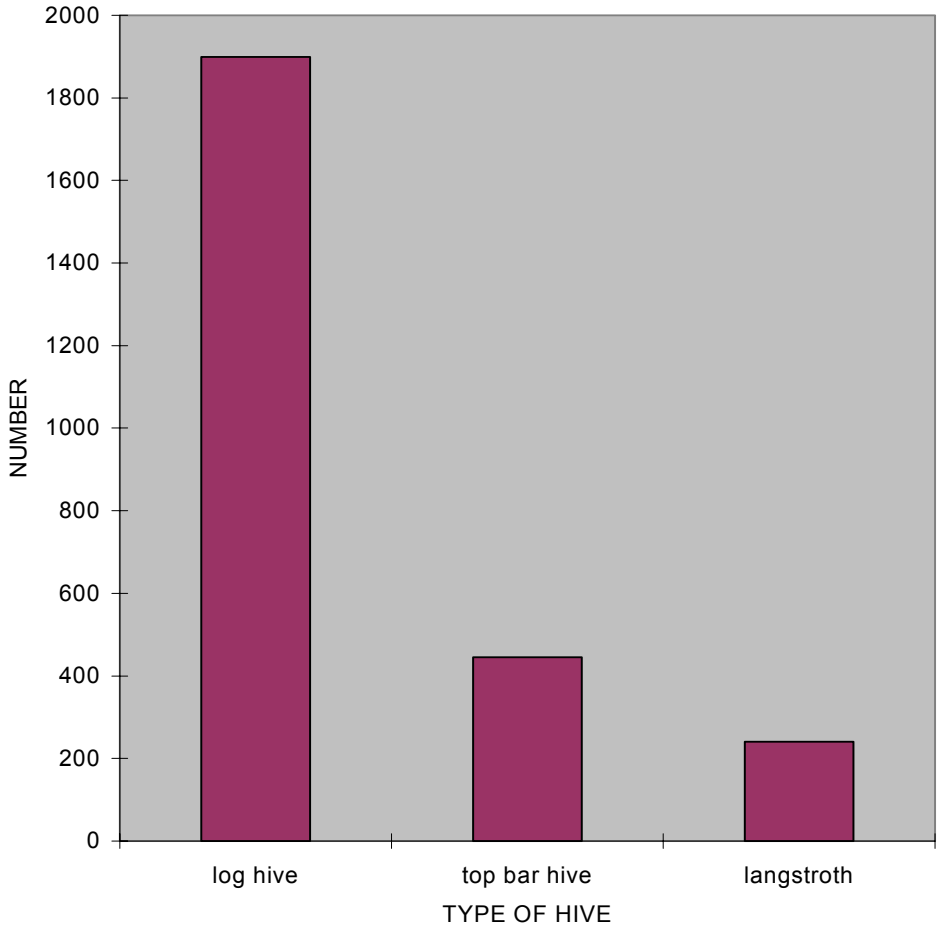
➲ **How many hives do you have and their type?**

The 75 producers interviewed possessed different type of hives. They owned about 2,585 hives in total among which we had:

- Log hive =73%
- Top Bar =17.2%
- Langstroth =9.3%.

This is illustrated by the chart below:

HIVE POPULATION:



➲ **How many are occupied by bees?**

From the 75 beekeepers surveyed different types of hives have different occupation rates. Some types of hives were easily occupied in some areas while others were easily occupied in other areas. However the average occupation rates of the different types of hives was as follows:

- Log hive = 77.2%
- Kenya top bar = 62.9%.
- Langstroth = 63.9%.

➲ **Which are the harvest seasons?**

Most of the areas covered have two harvesting seasons. However a few areas have one while some others have three harvesting seasons. This is as portrayed in table 1.

TABLE 1 - Honey Harvesting Seasons.

Area / Season	Londiani	Molo	Baringo	Keiyo	Karicho	Laikipia	Mombasa	Subukia	Lare	Bomet	Kisii	Samburu	Kapsabet	Bungoma	Lugari	Transmara	Uasin Gishu
Main flow	Nov /Dec	Sept /Dec	Nov/ Dec	Aug/ Nov	Nov/ Dec	Aug/ Sept	Sept/ Oct	Nov/ Dec	Nov/ Dec	Aug	Mar	Dec/ Jan	July	Feb/ Apr	Dec	Jan	Dec/ Jan
Minor flow			July/ Aug	Apr		Apr/ May	Apr/ May		Aug/ Sept	Mar/ Apr	Sept	Jun/ July	Dec		Jun	July/ Aug	
Other			Apr				Dec/ Jan		Feb/ Mar				Apr				

➲ **Which are the major nectar bearing plants/trees that produce honey? (Names)**

Different bee foraging plants dominate different areas. These are indicated in table 2 below.

TABLE 2 - Nectar bearing plants

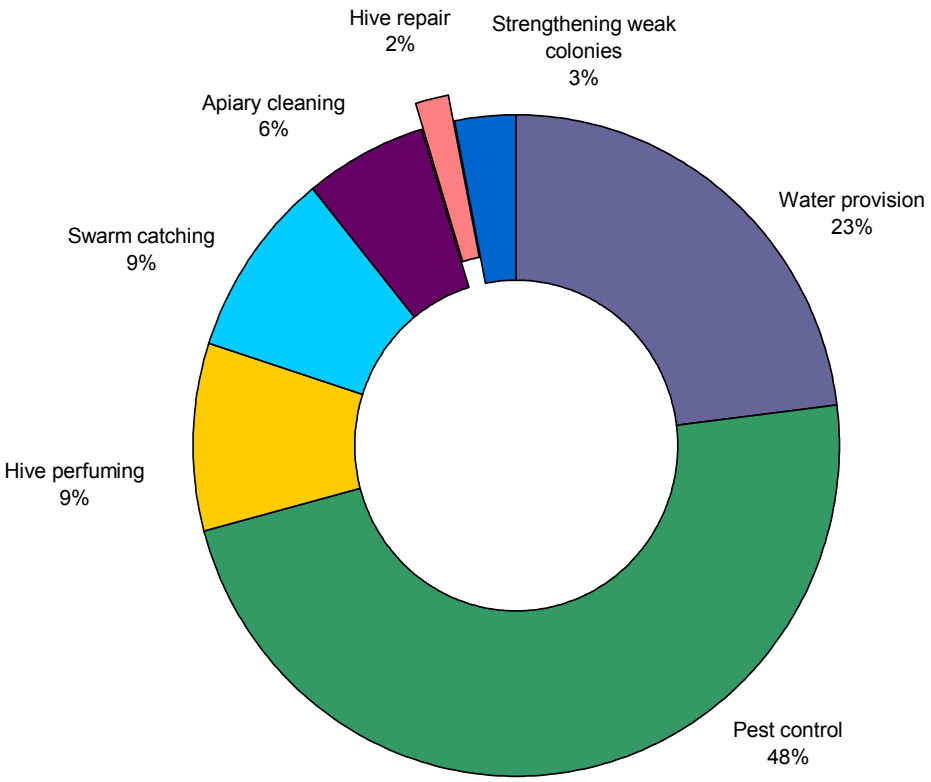
NECTAR BEARING PLANT			*AREAS WHERE DOMINANT*		
LOCAL NAME	***COMMON NAME***	***BOTANICAL NAME***			
Mukeu	Dombeya	***Dombeya goetzenii***	Molo/ Kapsabet	Londiani	Lare
	Bottle brush	*Callistemon citrinus*	Molo	Londiani	Kapsabet
Mukinduri		*Croton Megalocarpus*	Kapsabet/ Molo	Subukia	Lare/
Mubau	Blue gum	*Eucalyptus saligna*	Molo/ Londiani	Lare/ Bomet	Baringo/ Kapsabet
	Ladies ear drop		Molo		
Mukima	Silky oak	*Grevillea robusta*	Molo/ Mombasa	Lare	Lugari
Ng'ororet	Hook thorn	*Acacia mellifera*	Baringo		
Chemanga		*Acacia nilotica*	Baringo		
Kilewe			Baringo		
Tirion			Baringo		
Sietsiet		*Acacia tortilis*	Baringo		
Kalewo			Keiyo		
Kelelwa			Keiyo		

Kipraget			Keiyo		
Kiteiyat			Keiyo		
Kalewet			Keiyo		
Muruai		*Acacia spp*	Laikipia	Lare	
Kaiyaba	Kei apple	*Dovyalis caffra*	Laikipia	Bomet	Lugari
Muembe	Mango	*Mangifera indica*	Mombasa	Bondo/ Kisii	Baringo
	Banana	*Musa spp*	Mombasa	Bomet/ Bungoma	Kapsabet
Oranges	Oranges	*Citrus sinensis*	Mombasa	Subukia/ Baringo	Kapsabet
Coconut	Coconut		Mombasa		
Mababai	Paw paw	*Carica papaya*	Subukia	Baringo	Keiyo
Sunflowerr			Lare	Bungoma	
Coffee	coffee	*Coffea spp*	Bomet	Kisii	Baringo
Tebesuet		*Croton macrostachyus*	Bomet	Kapsabet	
Usuet	Magic quarri	*Euclea divinorum*	Bomet		
Keleluet			Bomet		
Guava	Guava	*Psidium guajava*	Bondo	Baringo	Lugari
Avovado	Avocado	*Persea americana*	Kapsabet	Kericho	
	Potatoes	*Ipomea batatas*	Bungoma		
Busanguli			Baringo		
Mbegu rahisi			Baringo		
Njilima			Samburu		
Lporowai			Samburu		
Lpruwai			Samburu		
Iti	Apple ring acacia	*Acacia albida*	Samburu		
Ldurte			Samburu		
Omosocho		*Croton microstachyus*	Kisii		
Kalewande			Baringo		
Muringet			Baringo		
Korwista			Baringo		
Rarendet			Kericho		
Kairolwet			Kericho		
Wild traw berry			Kericho		
Watle trees			Kericho		
		Lantana camara	Kericho		
Silbwet	Umbrella thorn	*Acacia abyssinica*	Kericho		
macadamia	Macadamia nut	*Makadamia tetraphylla*	Kericho		
Olairenyi			Transmara		
olpel			Transmara		
Osoket			Transmara		
Olkinyei	Magic quarri	*Euclea schimperi*	Transmara		
Osoket			Transmara		
Olgilai		*Tecrea nobilis*	Transmara		
Olchartiyian			Transmara		
Orkikeongos			Transmara		
Olkeparlu		*Croton macrostachyus*	Transmara		

➲ **What management practises do you undertake *(e.g. catching queens/swarms etc)***

The following management practices were recorded for the beekeepers interviewed. It should be noted that there is very little management of the bees (e.g. divisions, swarm control, feeding etc). The vast majority of beekeepers surveyed simply provide water, control pests and perfume the hive. **This demonstrates a lack of skills and knowledge on keeping bees and modern bee management.**

MANAGEMENT PRACTICES UNDERTAKEN:



➲ **What pest problems do you have?** ***(ants/honey badger/wasp etc)***

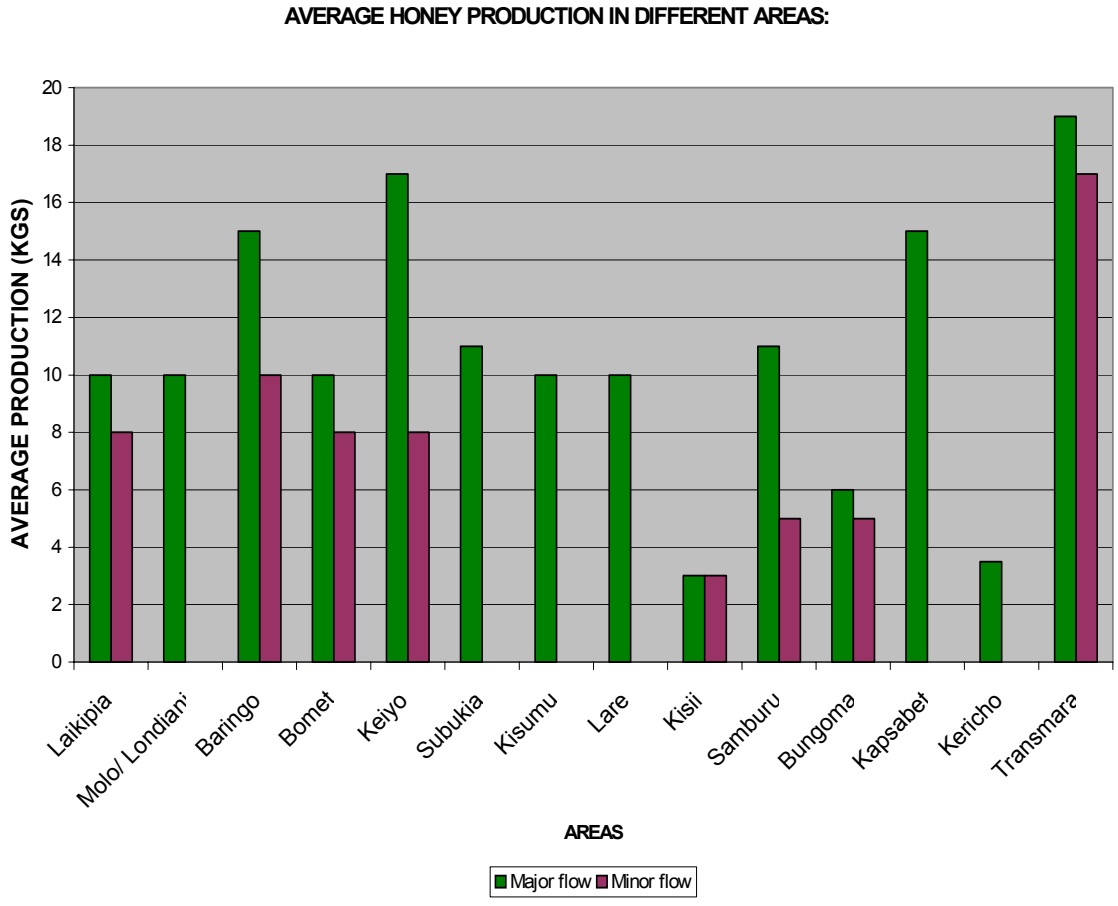
TABLE 3 - Bee pests prevailing in different areas

Area / Pest	Baringo	Bomet	Bondo	Bungoma	Kapsabet	Keiyo	Kisii	Laikipia	Lare	Londiani	Molo	Mombasa	Riruta/ Mtito	Samburu	Kericho	Transmara	Uasin Gishu
Ants	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	
Honey Badger	✔	✔	✔		✔	✔		✔				✔		✔		✔	
Mites													✔				
Wax moth					✔		✔						✔	✔		✔	
Humans	✔			✔				✔				✔		✔			✔

Rats	✔				✔	✔			✔	✔	✔	✔					
Wasps	✔											✔		✔	✔		✔
Birds				✔		✔		✔	✔							✔	
Squirrel						✔											
lizards										✔	✔						
Black Beetle								✔									
Red Bee beetle																	✔
Pole cat									✔								
Bee louse														✔			

➲ **What quantity of honey do you harvest each harvest?** ***(specify type of containers/volume for each harvest)***

The chart below gives the average honey yields in different areas surveyed. The weights/volumes given by producers have been converted into Kilograms for easy comparison.



➲ **Do you harvest wild honey?** ***(specify quantity)***

Among the producers interviewed, 45.6% harvest wild honey. This practice is common in areas like Kerio Valley and Kapsabet where some indigenous forests are still existing. No records of the amount harvested are kept thus, it's had to give an estimate of the wild honey harvested.

➲ **How do you process the honey?**

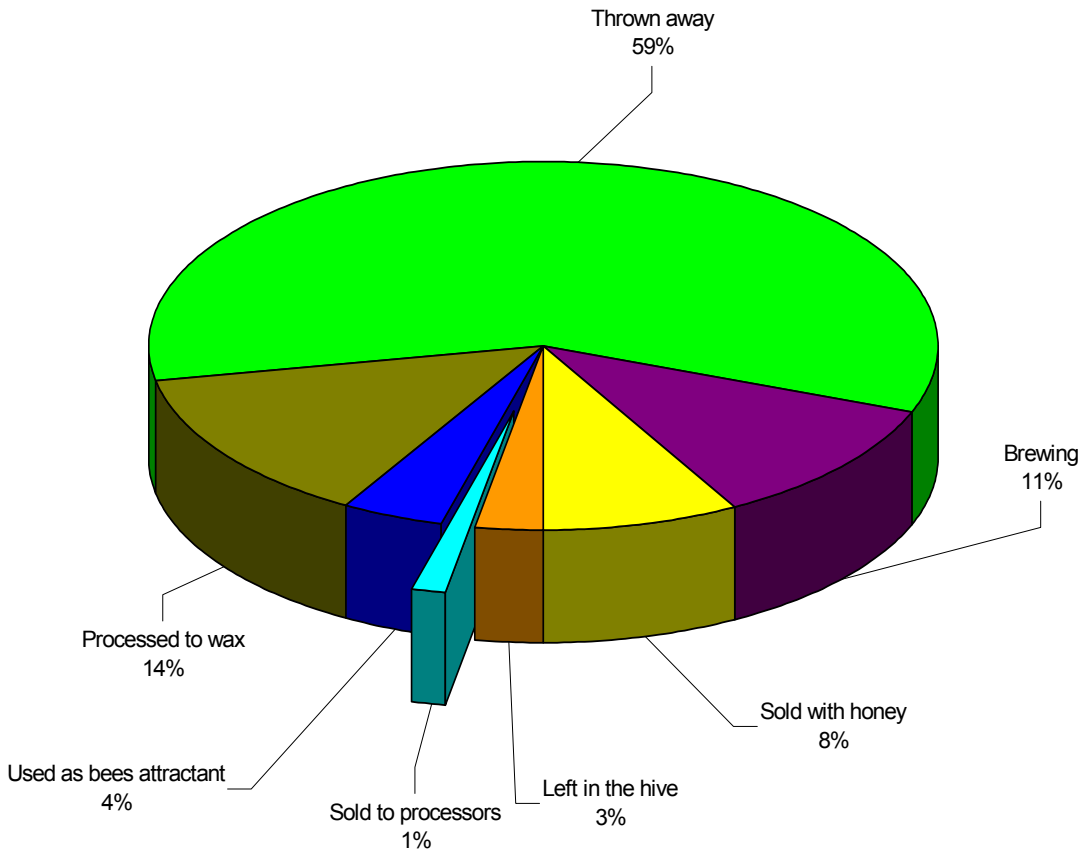
Very little or no processing is done on the honey harvested. This is mainly due to lack of skills in processing, lack of processing equipment and due to the local consumer's preference. The type of processing carried out by producers surveyed is shown below:

No processing- 18%
Sieving- 32%
Boiling- 17%
Smashing- 23.4%
Adding other substances e.g. water- 1%
Packing- 7.4%
Selecting- 1%

➲ **What do you do with the wax?**

The respondents' answers on the above question are presented in the chart below. 62% either throw away the wax or leave it in the hive. This is in spite of the fact that a kg of beeswax is more valuable than a kg of honey.

USES OF BEESWAX AND EMPTY HONEY COMBS:



➲ **What previous training have you had on beekeeping?**

73.2% of the producers interviewed have not had any training at all on beekeeping.

Of the above 73.2%

- 11.3% have had some exposure to modern beekeeping through seminars
- 8.5% through on-farm visits
- 5.6% via field days
- 47.8% have relied on traditional knowledge passed over to them by their parents or grand parents on a trial and error basis.

Of the remaining 26.8% who have received formal training in beekeeping:

- 24% through certificate or short courses
- 2.8% at primary and secondary school levels.

➲ **Do you have contact with extension agents promoting modern beekeeping practices?**

Although more that 30% of the contacted intermediaries offer extension services, **63.6% of the producers said that they have no contact with extension workers who are promoting modern beekeeping technology.** The 36.4% who have contact with extension workers see them rarely while some only come when collecting information to help them write their reports! Others are only seen during chief's *barazas* (public meetings).

➲ **Are you expanding your beekeeping enterprise?** ***(if not why not)***

80.3% of the producers are expanding their beekeeping enterprises. They are doing this by buying more hives and trying to make their empty hives occupied with bees. The 19.7% who are not expanding their enterprises gave different reasons for not doing so. The reasons given were:

- Bad weather conditions e.g. prevalent drought in some areas.
- Lack of market or unreliability of the existing market.
- Lack of resources/ skills.
- Very low production levels
- Small land sizes.

➲ **Is honey used in the home or sold?** ***(if used in the home specify for what – medicine, food etc - specify the percentage sold)***

In the home honey is used as a food in porridge and to sweeten tea. It is also used to make traditional beer as well as a medicine to cure colds & flue and the treatment of burns.

➲ **For honey sold what containers/quantities is it sold in?** ***(e.g. bottles/cans etc)***

The harvested honey is packed and sold in different types of containers. 45.8% of the producers surveyed sell their honey in tins or 4 liters gallons (this is bad form of packing the honey as honey is acidic and corrodes the metal), 22% sell their honey in bottles, 23.7% in plastic containers while 8.5% sell their honey in kasukus (cooking fat containers) or any other readily available containers. Only 1.7% of the producers sell comb honey and this is sold in trays.

➲ **Who buys the honey and what price?** ***(specify middlemen/consumers and end use of the honey)***

Local consumers and middlemen buy honey from producers at the prices indicated in Table 4.

➲ **What are the local market prices for honey?** ***(specify price range/fluctuations)***

The selling price of honey varies greatly in different areas. The prices prevailing in different areas are indicated in Table 4. However these prices are negotiable, they are also prone to fluctuation depending on whether the supply is plenty or scarce. When plenty the prices are low while when scarce the prices are high.

TABLE 4 - Honey prices to producers (Ksh*)

Area / Buyer	Baringo	Bomet	Bondo	Bungoma	Kapsabet	Keiyo	Kisii	Laikipia	Lare	Londiani	Lugari	Molo	Mombasa	Riruta/ Mtito	SAmburu	Subukia	Transmara
Local Consumers	120-150	100	430	120	70	125	340	100-150	100-180	280	85	120	240	130-150	55	200	100-130
Middlemen	100			80													100

*Note: 1 Euro = 69Ksh - Kenya Shillings

➲ **What are the local market quality requirements for honey?**

Local consumers (village level) hardly consider the quality of honey they purchase. Among those who consider honey quality, taste, purity, colour and liquidity are the most considered factors. Factors like moisture content and cleanliness are of minor importance to most consumers.

➲ **How is the local demand for honey? *(Strong/weak etc specify)***

The local demand for honey in most of the areas (69%) is very strong, in a few areas (8%) the demand is subject to the forces of demand and supply where when the supply is high the demand is low and vice versa. Demand for honey is very strong in areas like Kericho due to honey shortage while it's very weak in Baringo and Transmara since there is a lot of honey (each household has a few hives).

➲ **Do you remember a time when there was more honey/beekeeping/beekeepers?**

Generally we can say that there is a decrease in the beekeeping trend. This is because most producers responded that there was more honey/ beekeeping (wild honey?) a few years ago. This might be due to increased use of agrochemicals, deforestation and drought.

➲ **Any Other Comments:**

The following is and analysis of the comments given by each individual beekeeper during the producer survey. *See annex 4 for the survey form.*

Strengths	**Weaknesses**
▫ Beekeeping is the solution to poverty eradication in aid and semi-arid areas (ASAL) ▫ Some groups in Transmara are able to harvest more than one tonne of honey per season where 90% of the honey is sold. ▫ Beekeeping is cheap to start in that it requires low capital, low labour and is a profitable enterprise.	▫ Beekeeping is not yet being taken seriously or as a business in many areas. Most of the producers take it as a hobby thus no considerable management factors are undertaken. ▫ Markets for hive products and especially honey is a major problem producers are facing. There are no proper marketing procedures. ▫ Low income levels have hindered many from venturing into beekeeping. ▫ The culture of some tribes allows only men to practice beekeeping although women are allowed to sell the honey. ▫ More field officers should be employed to work with beekeepers. ▫ Follow-up to farmers is highly required ▫ Education on beekeeping is urgently required if the beekeeping industry is to develop.
Opportunities	*Threats*
▫ A credit scheme may enable many new beekeepers get started. ▫ Beekeeping is viable in areas like Molo and Bomet except for the low rate of hive occupancy. ▫ Beekeeping has a high potential in many areas but it has not been exploited. ▫ In Kericho beekeeping is only suitable in some parts particularly the lowlands which are not wet and cold throughout. These areas are also not polluted by use of chemicals as in tea growing areas. ▫ If indigenous beekeepers are guaranteed a market for white combed honey without crushing and are trained on how to produce it using the log hive, they can produce a lot of it. Log hive entrance adjustment for harvesting will enhance this. ▫ NGO's are willing to assist beekeepers develop their beekeeping enterprises.	▫ Unpredictable weather changes have greatly hindered or affected beekeeping in many areas. ▫ Deforestation has affected beekeeping to a great extent. ▫ Bee phobia among some people has been a major hindrance to beekeeping. ▫ Low hive occupancy rates will demoralize producers. ▫ Increased use of agrochemicals is a major threat to beekeeping especially in areas like Bomet and Subukia. ▫ Honey theft and colony destruction is reported in some parts of Laikipia

Producer Groups:

The following is a SWOT analysis of the following bee groups interviewed: Kameguinyeti Beekeeping Group, Bomet; Ruguta men and women group, Nanuyki; Ruai Beekeeper's Cooperative and Lare Beekeepers, Nakuru.

Strengths	**Weaknesses**
▫ High group membership. ▫ Cohesive groups with committed membership. ▫ Good leadership. ▫ Registration fees and contributions from members to sustain the group. ▫ Meetings held regularly to discuss the groups progress and plan activities. ▫ Group exposure to many NGOs who are willing and able to assist. ▫ Knowledge on wax processing. ▫ Ability to grade honey. ▫ Trained members. ▫ Have a revolving fund and a bank account. ▫ Large numbers of traditional hives. ▫ Ability to sell honey/buy equipment collectively.	▫ New groups lacking experience. ▫ Poor leadership structures. ▫ Low income of members making the purchase of equipment difficult. ▫ Lack of technical knowledge leading to poor harvesting and handling. ▫ Low hive occupation rates. ▫ Low numbers of hives. ▫ Hives communally owned leading to poor management. ▫ Honey sold in poor packaging. ▫ Poor harvesting and handling - lack of quality standards in handling honey. ▫ Poor marketing - honey sold in small quantities locally. ▫ Low honey production due to drought. ▫ High rate of bees absconding. ▫ Traditional beekeeping where everything in the hive is harvested and it takes the bees a long time to recover. ▫ Small farms limiting the number of hives kept. ▫ Ignorance of the value of beeswax resulting in wax combs being thrown away.
Opportunities	*Threats*
▫ Honey has a strong local demand and unexploited markets. ▫ Assistance by NGOs in offering services including credit. ▫ Many National Parks and hotels locally offering good market. ▫ Various groups are willing to come together and form an association.	▫ Use of toxic agro-chemicals in some areas causing the death of bees. ▫ Poor/low hive occupation rates in some areas. ▫ Drought. ▫ Theft of honey from hives. ▫ Ants attacking the hives. ▫ Charcoal burning/tree destruction. ▫ Many middlemen in the honey market. ▫ Production of low quality honey rejected by the market.

B. Key findings of equipment survey:

Introduction to the survey:

This type of information is very useful in evaluating the effectiveness of the Kenya Top Bar hive being manufactured by Baraka Agricultural College at Molo. We went through the Baraka hive sales records and tried to track down those who had bought equipment in the past ten years to measure the effectiveness of the equipment. It was difficult however to locate many beekeepers who had purchased the equipment. A total of 18 beekeepers were interviewed at length who had 217 Kenya Top Bar Hives most of which were bought from Baraka. This collection of feedback on beekeeping equipment will become an ongoing activity at Baraka. The results of this limited survey are presented in this section. *See Equipment questionnaire in annex 4.*

Results Summary:

- While the respondents said that they benefited from the improved hives due to ease of handling the bees, 60% said that they had no proper harvesting gear such as beesuits, smokers and hive tools.
- The life of the Kenya Top Bar hive is about 10 years.
- The majority appear to get higher yields from the KTBH than traditional hives.
- The KTBH hive needs to be adapted to the local conditions of the beekeeper - the same hive will not suit all areas.
- The KTBH hive frequently cracks allowing bees to fly from holes in the hive.
- The lid of the KTBH is easily blown off when windy.
- The hive is expensive.
- Absconding of bees is a problem.

- From the time hives were hanged it took a period of one week to two months for the hives to be occupied depending on the area (however from our experience in some areas hives may stay unoccupied for years). This variation was said to be due to:
    - Different climatic conditions prevailing in different areas. Due to heavy rainfall and cold experienced in some areas it takes a long time for the hives to be occupied. This is because bees hardly swarm or migrate when it is cold.
    - Untimely hive hanging where most of the beekeepers hang their hives any time they are available (not during swarming seasons).
    - Deforestation, which has led to scarcity of bee foraging plants.
    - Use of toxic agrochemicals in many commercial farms.
- 60% of the producers surveyed said they can handle their colonies with ease when using the Kenya Top Bar Hives from Baraka. The remaining 40% are not able to handle/ manage their colonies with ease mainly due to the following reasons:
    - Lack of beekeeping equipment like the harvesting gear to help in harvesting and hive inspection.
    - Lack of skills in handling and management of colonies.
- Under proper management and care it was evident that a Kenya Top Bar Hive can serve a producer for an average of ten years before any repairs are needed. However some had to repair the hives after every three years due to poor harvesting

techniques e.g. use of fire to drive away the bees during harvesting. This causes damage or burning of some of the top bars.

- Very few producers keep records of the honey they produce. From those who have an idea of the amount they produce an average of 11.1kgs of comb honey was obtained from each hive/season.

- When the top bar hive and the traditional hives are compared, 6% could harvest five times as much, 17% of the producers could harvest twice as much while 33% said they could harvest more without specifying the quantity. The remaining 44% had only top bar hives and therefore could not make any comparison on the amount produced.

- Only 40% of the respondents had other beekeeping equipment like the harvesting gear, smoker and the hive tool. They responded that this equipment gave them very good service. However some, (10%) had problems with the gloves, which they said was due to the hard material used to make them. The flexibility of the fingers during operation was compromised. Some materials used to make bee suits were also said to shrink on washing reducing the entire size of the bee suit.

The following comments on equipment were presented by producers:

- There is a lack of appropriate top bar hive designs for some regions. Areas like the Kerio valley are usually very hot. Colonies in a Kenya Top Bar Hive (KTBH) are therefore not able to cool the hive causing bees to abscond. This is because the KTBH has a tin roof. As a result most of the producers along the valley have gone back to the use of the traditional log hive. In other areas like the lowlands of Bomet the occupation rate in top bar hives is very low while it is very high in the high lands. Most of the top bar hives in the lowlands are therefore lying empty. Its recommended that further research should be done with the aim of improvising a top bar hive which is appropriate for the various regions e.g. a hive that will best suit hot as well as cold regions.

- There is inadequate technology transfer between the researchers and the producers.

- The absconding of bee colonies is very high in some areas (resulting in low occupation rates).

- The Kenya Top Bar Hive's lid is easily blown off by wind especially where no hedge established around the apiary.

- The timber out of which hives are made often cracks after some time creating many unwanted openings (perhaps hives are sometimes made of wet timber).

- When rained on the hive timber absorbs water which later causes rotting.

- The high cost of top bar hives making it unaffordable to some interested and willing beekeepers.

- There is very poor apiary siting and management among some producers.

C. Key findings of intermediaries survey:

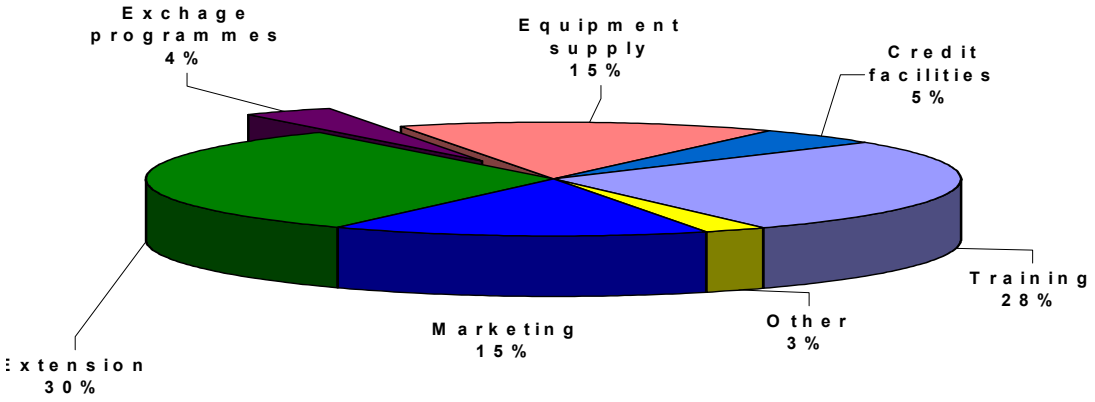
Results Summary:

- Intermediaries site a lack of skills in apiculture as one of the major problems in beekeeping. This was followed by poor marketing, lack of equipment and lack of funds.
- There is a need for a serious body to coordinate the beekeeping industry in Kenya.
- There is a need for awareness/ promotion campaigns on beekeeping.

- The postal survey covered many parts of the country. These areas included: the Coast Province, Bomet, Kericho, Laikipia, Keiyo/ Uasin Gishu/ Baringo, Western/ Nyanza provinces, Naivasha/ Nakuru/ Narok, Eastern and Central provinces. It was clear from the feedback that most of the beekeepers are located in areas like Baringo/ Keiyo/ Uasin Gishu, Eastern provinces and some parts of Western and Nyanza provinces. The data also indicated that most beekeepers in Western/ Nyanza and Eastern and Central provinces work in groups while those in other regions work individually. This is indicated by the large number of beekeepers' groups in these areas.

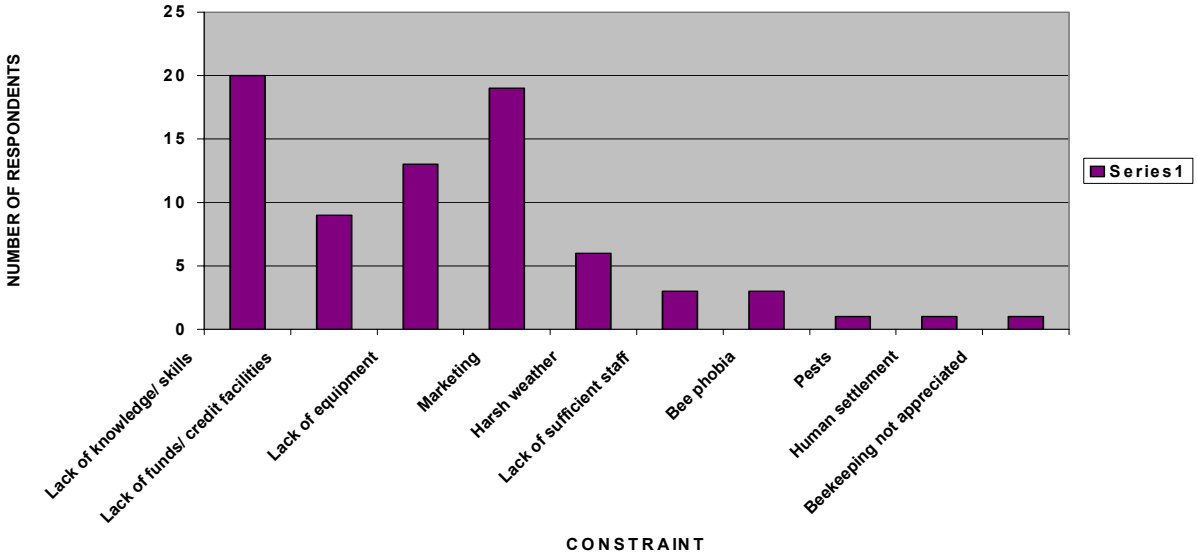
- The intermediaries support the beekeepers in a number of ways. 30.1% of the intermediaries offer extension services, 28.8% offer training either on-farm training or through seminars/ field days, 16.4% help the beekeeepers to acquire equipment e.g. by identifying the proper equipment on their behalf while 15.1% assist in marketing e.g. by providing market information. Very few (4.1%), offer credit facilities. Other support provided, but in limited, include exchange programmes, group registration, helping identify appropriate donors and proposal writing.

SUPPORT OFFERED BY INTERMEDIARIES:



- **Lack of knowledge/ skills in apiculture was identified as one of the major problems (27.4%).** This was followed by poor marketing with 23.3%, lack of equipment or high cost of the same (16.4%) and lack of funds/ credit facilities (12.3%). Other problems of minor importance include harsh weather, lack of enough staff, bee phobia and lack of recognition of beekeeping as an economic activity.

BEEKEEPING INDUSTRY CONSTRAINTS:



- 28% of the respondents buy honey from the beekeepers they work with. 4% were buying honey in the past but they no longer buy while the rest do not buy though some provide some market information.

The respondents gave a number of comments presented below:

- The beekeeping industry requires some seriousness and coordinated collaboration by all the stakeholders in the industry.
- There is need to train farmers on modern beekeeping methods as most of them are still using traditional methods.
- The industry has a high potential in Kenya thus more resources should be allocated to fully exploit the existing potential.
- Awareness campaigns should be initiated on beekeeping to promote and open markets for bee products.
- There is need to create some access to credit to help farmers institute and expand their beekeeping projects.
- There is a decline in beekeeping in many parts of the country mainly due to drought and farmers abandoning beekeeping to other profitable farming activities like dairy cattle rearing.
- There is a lot of fake honey in the market, which is causing dispensable competition with genuine honey from farmers.
- More carpenters and beekeeping equipment artisans should be trained to enhance equipment affordability.
- Research on bee pests and how to control them should be undertaken.
- Marketing of bee products should not be limited to honey alone.
- There lacks a committed body to oversee and monitor development in the beekeeping industry in Kenya.

D. Key findings of processor/packer survey:

Introduction to the survey:

SWOT analysis of honey processors and packers was undertaken during interviews at their premises. The following processors and packers were interviewed: Wedakin honey, Ruai beekeepers cooperative, Bondo honey refinery, Samburu Mountain Honey, Honey Care Africa and Baraka Beekeeping Development Unit. Individual SWOT analyses were combined below to come up with an overall picture. *See annex 5 for individual SWOT analyses*.

Results Summary:

- The majority of honey processors and packers complained in low/inconsistent supplies of variable quality honey from producers.
- Markets are under developed due to low volumes.
- Producers are not organized and need training.
- Fake honey, adulteration and sabotage are a great threat
- There is little faith in Kenya Bureau of Standards (KEBS) certification of honey.
- Volumes and quality have not been reached for export.
- A lack of skills and equipment for processing honey to the required quality.
- Undue competition from cheap fake honey.
- Most packaging is sourced locally and can be unattractive and unreliable.
- Consumers are uneducated about honey, it's properties and uses.
- Rural markets and inner city markets are not being adequately targeted.
- Crystallization is a recurrent problem.
- A ready market for their products but stock outs resulting in lost business.
- A general lack of business management skills.

Combined analysis of processor/packer interviews:

On the following page is a combined analyses of the SWOT (strengths, weaknesses, opportunities and threats) f the above mentioned honey processors and packers.

	STRENGTHS	WEAKNESSES	OPPORTUNITITES	THREATS
PRODUCTION	• Have extension workers sent to the field to organise farmers. • Affiliated to 20 women groups who supply honey. • 300 active beekeepers supply the business • Ability to pay cash for the honey on delivery. • Strong links with middlemen who supply honey • Produce own honey for sale • Suppliers meet the cost of transport • Ability to test and grade honey • Suppliers are trained • Unique floral source of honey • Supply contracts with farmers using Langstroth hives • Collect honey from farmers and pay cash	• Rely on local producers alone for honey supply. • Inconsistency honey supply. • Not able to do honey grading. • Very low honey supply. • Exploitation by middlemen • Farmers harvest unripe honey • Poor cash flow and inability to pay farmers cash • General poor quality of honey e.g. fermenting, dirty • Refinery located far from producers	• High potential beekeeping zone. • Ability to maintain high quality • Refinery near the suppliers • Buy honey from affiliated groups • Encourage farmers to purchase more modern hives • To produce honey from the international market	• Drought. • Farmers abandoned bee keeping to other farming practices. • Very weak farmer- refinery relationship • No quality assurance by suppliers • Inconsistency of supply • Unoccupied hives • Charcoal burning • Bees absconding • Hive theft and destruction
PROCESS	• Owns good honey processing equipment. • Equipment with a capacity of 72 tonnes per year. • Owns 1 acre plot of land where the refinery is located. • Honey certified by Kenya Bureau of Standards • Trained on honey processing • An effective solar heater • Buys beeswax in the comb and is able to process wax	• Poor heating method using firewood and thermometers to check and control the temperatures. • Non-operational currently due to honey shortage. • No processing equipment and therefore using traditional methods • Contamination of honey • Overheating honey during processing • Mixes all honey grades after refining • Lack of modern equipment e.g.s to control crystallization/produce creamed honey etc •	• Refinery located near the area of honey supply. • Refinery located near honey market	• Failure to produce and maintain high quality on honey. • Unreliable honey supply • Stock-outs resulting in lost business
PACKAGING	• Ability to pack in different packages both plastic and glass jars. • Well designed and attractive label.	• Honey crystallization in jars • Jars leak • No seal on jars • No variety of packaging on the Kenyan market • Low quality packaging in Kenya	• Brand name locally known. • Kenyan printers can supply high quality labels	

	• Instructions on labels • Bulk packages for hotels			
DISTRIBUTION	• Do their own distribution. • Have sales and marketing officer. • Have agents selling on commission	• Rely mainly on the local market for distribution. • No vehicle • Inefficient and erratic delivery of honey to shops • Expensive commission charged by agents	• Have a wide area of honey distribution.	• Undue competition from cheap fake honey.
MARKETS	• Their honey much liked by consumers. • Honey certified by KEBS thus consumers having confidence on the product. • Have a well know brand name • Ready market in hotels and lodges • Makes and sells furniture polish and saddle soap from beeswax • Good PR activities with stands at shows and foodfairs	• Poor marketing structure. • Buys honey for cash and sells on credit • Poor PR for the business • Plastic jars are unattractive • Honey crystallization which is not understood by consumers • Poor financial management with frequent bad debts	• Received orders and tenders from Trufood Nairobi but was unable to meet the set conditions. • Large unexploited market. High local demand.	• Brand name may become extinct in the market. • Consumers fear honey may be adulterated • Competition from fake honey in the market

E. Key findings of hotel/industrial buyer survey:

Introduction to the survey:

Random and non-random sampling of hotels and industrial buyers was undertaken in Nairobi using semi structured interviews and SWOT analysis.

The following hotel and industrial buyers were surveyed:

- Serena group of hotels and lodges - hotel
- Nairobi Serena hotel - hotel
- National Airport Services (NAS) - pack food for airlines
- Kenya Wine Agencies - make honey beer
- House of Manji - make biscuits
- Carnivore Restaurant - top Nairobi restaurant
- Beta Healthcare - pharmaceutical manufacturer

The results summary is presented below. *See annex 5 for more detailed individual SWOT analysis.*

Results Summary

- Most buyers purchase honey from traders.
- All use locally available honey from Kenya or Tanzania.
- Most buyers wish to see some form of certification.
- Most buyers purchase on a monthly basis.
- All site little problem with supply.
- Industrial buyers buy per kilo.
- The market for local honey is underdeveloped.
- A lot of local honey is adulterated or fake.
- Most buyers do random testing of deliveries.
- Honey must be transported in sealed, clean containers.
- Prices offered by industrial buyers tends to be very low.
- Prices range from 96/= to 230/= per kilo.
- Honey is used in food preparation, alcohol preparation, medicines and confectionary.
- Most hold stocks to overcome seasonal fluctuations in supply.
- Terms of payment are negotiable but all require at least 30 days credit.
- All of the sample group are interested in negotiating with new suppliers.
- When purchasing buyers will consider availability, taste, packaging, cost, quality and colour.

F. Key findings of retailers survey:

Introduction to the Survey:

The following retailers/wholesalers were surveyed in Nairobi:

- Uchumi Supermarkets (central purchasing)
- Nakumatt Holdings
- Zucchini
- Woodley Grocers
- Uchumi Sarit
- Uchumi Lang'ata
- Trolleys and Baskets
- Supervalue
- Nakumatt Uhuru Highway
- Metro Cash and Carry
- Macason Supermarket
- KNA Supermarket
- Karen Provision Stores
- Continental Supermarkets

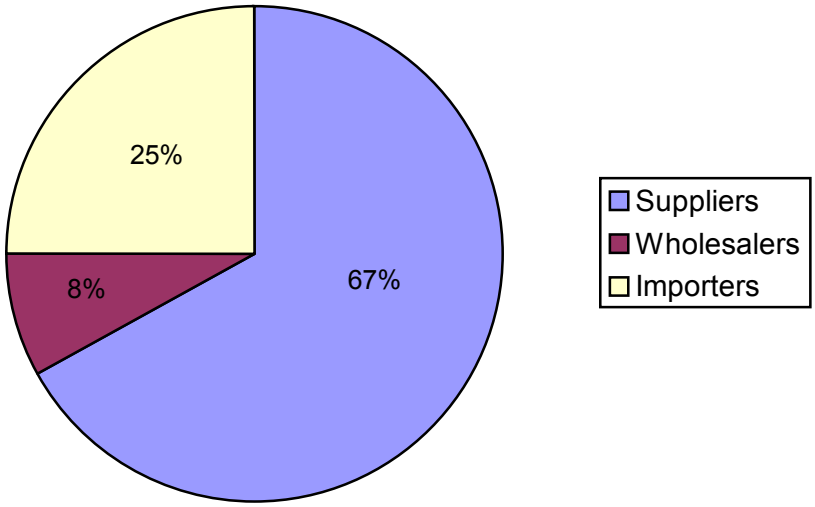
See annex 3 for individual details of the retailers surveyed.

Results Summary

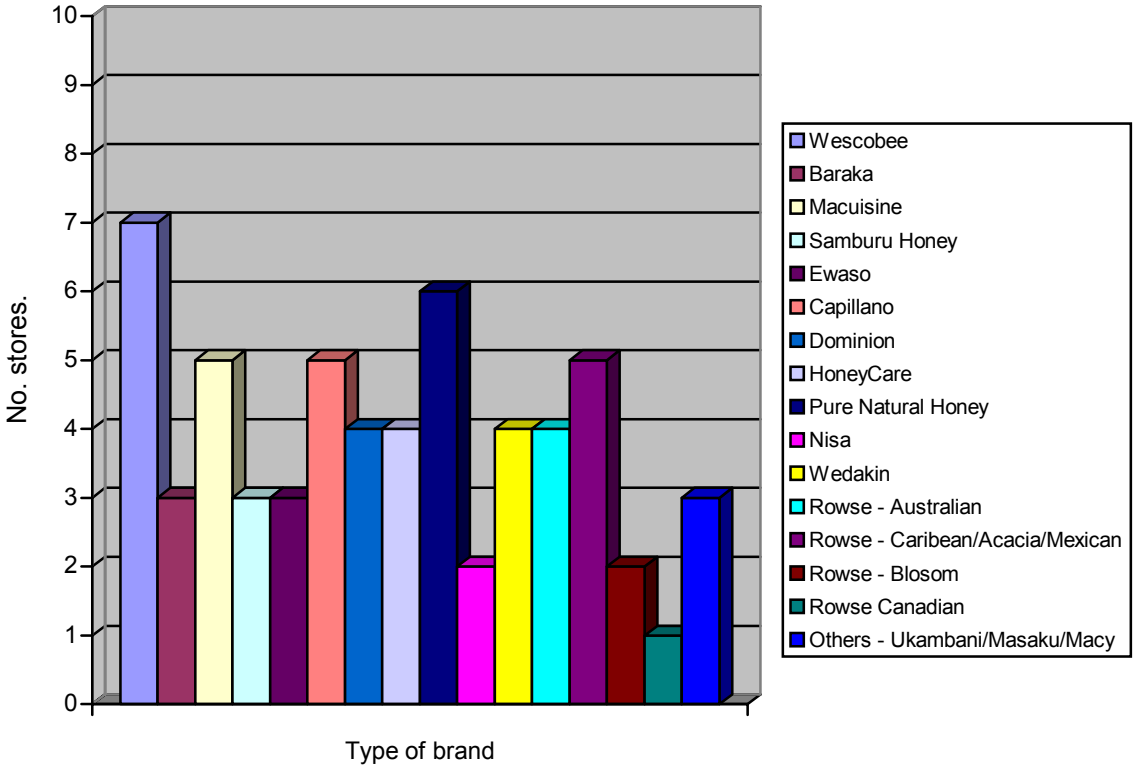
- 67% of honey is bought through suppliers.
- The most common brand for sale is Wescobee Honey.
- 67% of honey for sale originates from Australia - Australian honey sells more than any other imported brands.
- 75% of honey for sale is imported.
- 58% of respondents stated that they had no problem with the supply and availability of honey.
- 67% of retailers stated that customers preferred Pure Natural Honey from Bastonde. Enterprises due to it's quality.
- The best selling imported honey is Wescobee Honey.
- The best selling local honey is Pure Natural Honey and Ukambani Honey.
- The leading local brand is Pure Natural Honey.
- 50% of respondents stated that the demand for honey is increasing.
- Nakumatt sells the highest number of 500g jars per month.
- The average selling price for a 500g jar is 151.67/=.
- The average buying price for a 500g jar is 132.23/=.
- Continental Supermarket has the highest mark-up on honey.
- The average mark-up on honey is 18.77%.
- 58% of respondents stated quality as being the highest purchasing consideration.
- The average for terms of payment is 63 days credit.
- Trolleys and basket records low sales because of its location compared to Nakumatt. which is located on a central place and has more shoppers.
- All local honey with high sales has the same price i.e. Wedakin/Baraka/ Pure Natural Honey (120 – 156 Ksh).

- 500gms jars have the highest demand.
- Nakumatt has the highest sales because of its location and good parking.
- Woodley that gives a negotiable 120 terms of payment had a few varieties of honey - most honey suppliers are attracted to the outlets that give a negotiable 30 days - eminent as these stores had a variety of honey brands.
- Some stores do not have most of the brands at the time of the survey therefore few brands were recorded e.g. Supervalue and Woodley Grocers.
- One retailer commented that most customers prefer honeycomb honey.

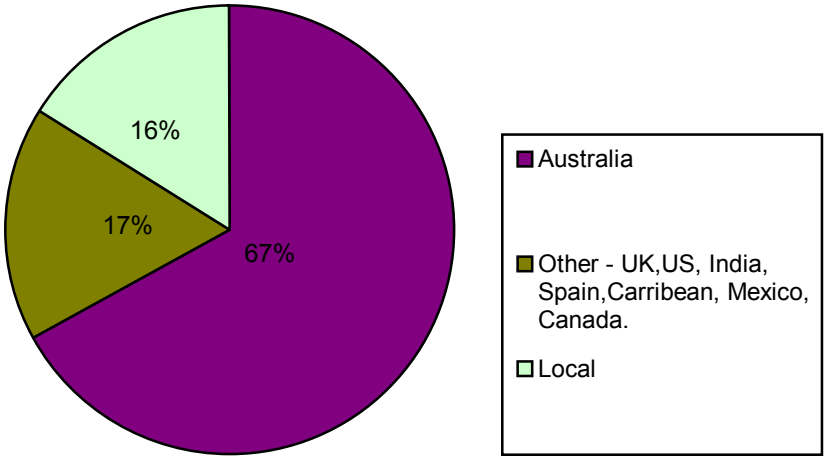
Sources of honey:



Most common brands for sale:

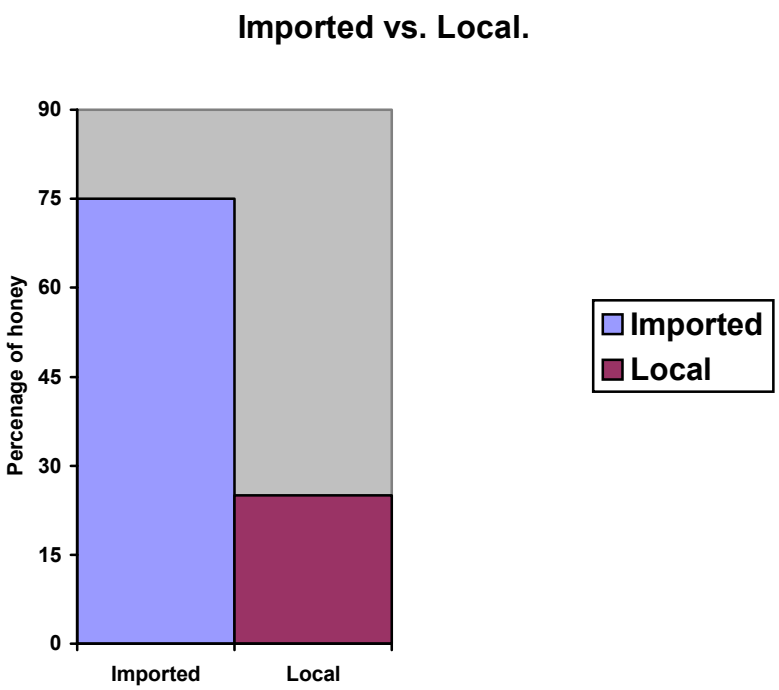


Most common geographical sources:

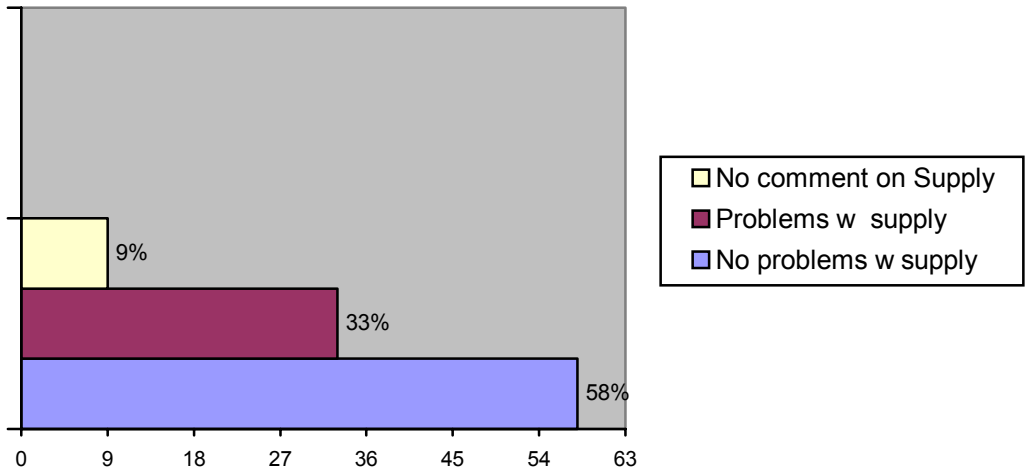


- **Other geographical honey origin are in order i.e. UK, US, India, Spain etc**

Percentage of imported honey in the market:

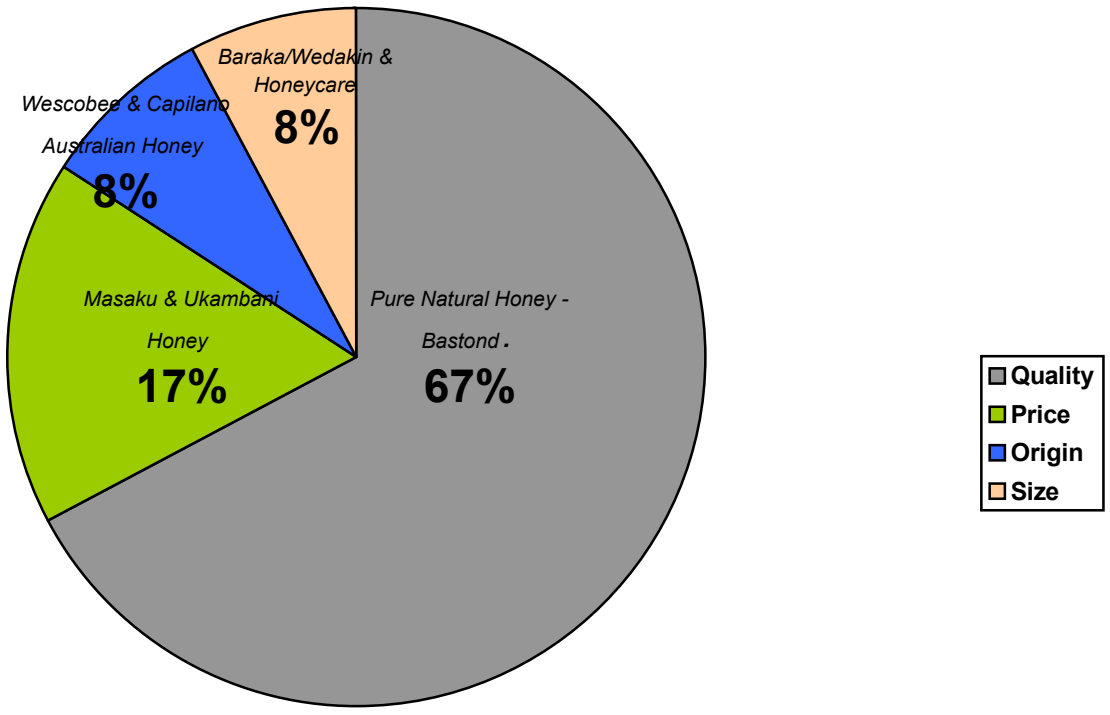


Availability of local honey/ supply of local honey:



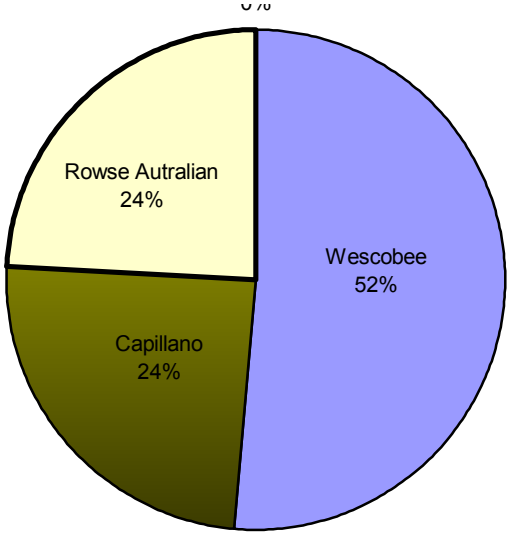
Supply.

Customer preferences:

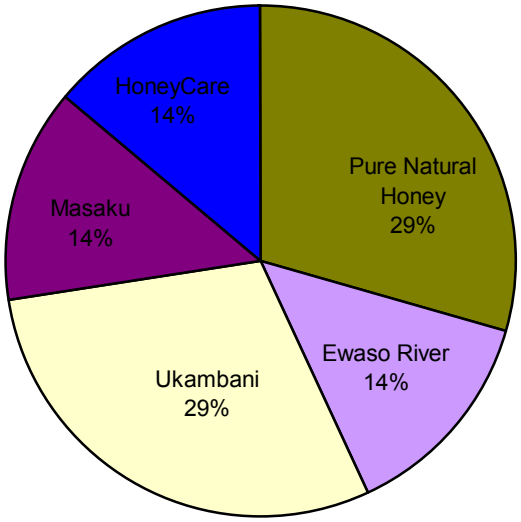


The best selling honey brand:

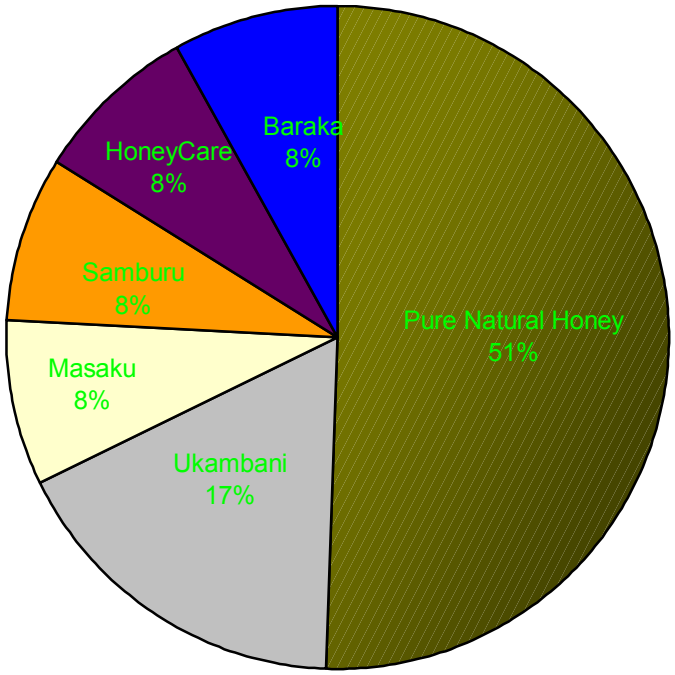
Imported Brands.



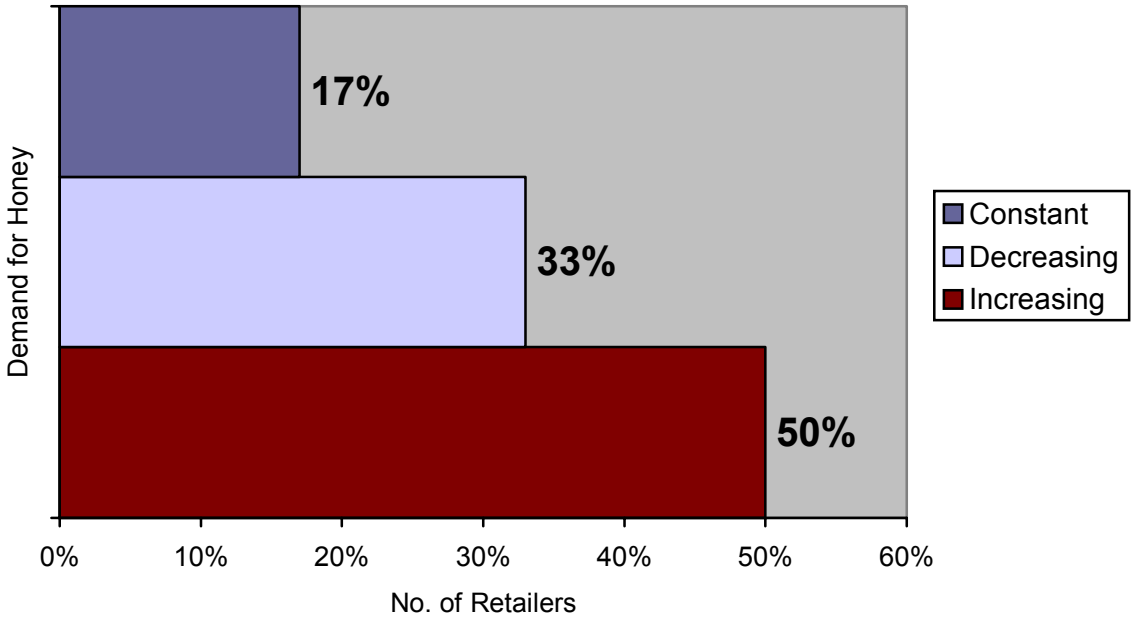
Local Brands



The leading local brand:



The demand for honey:



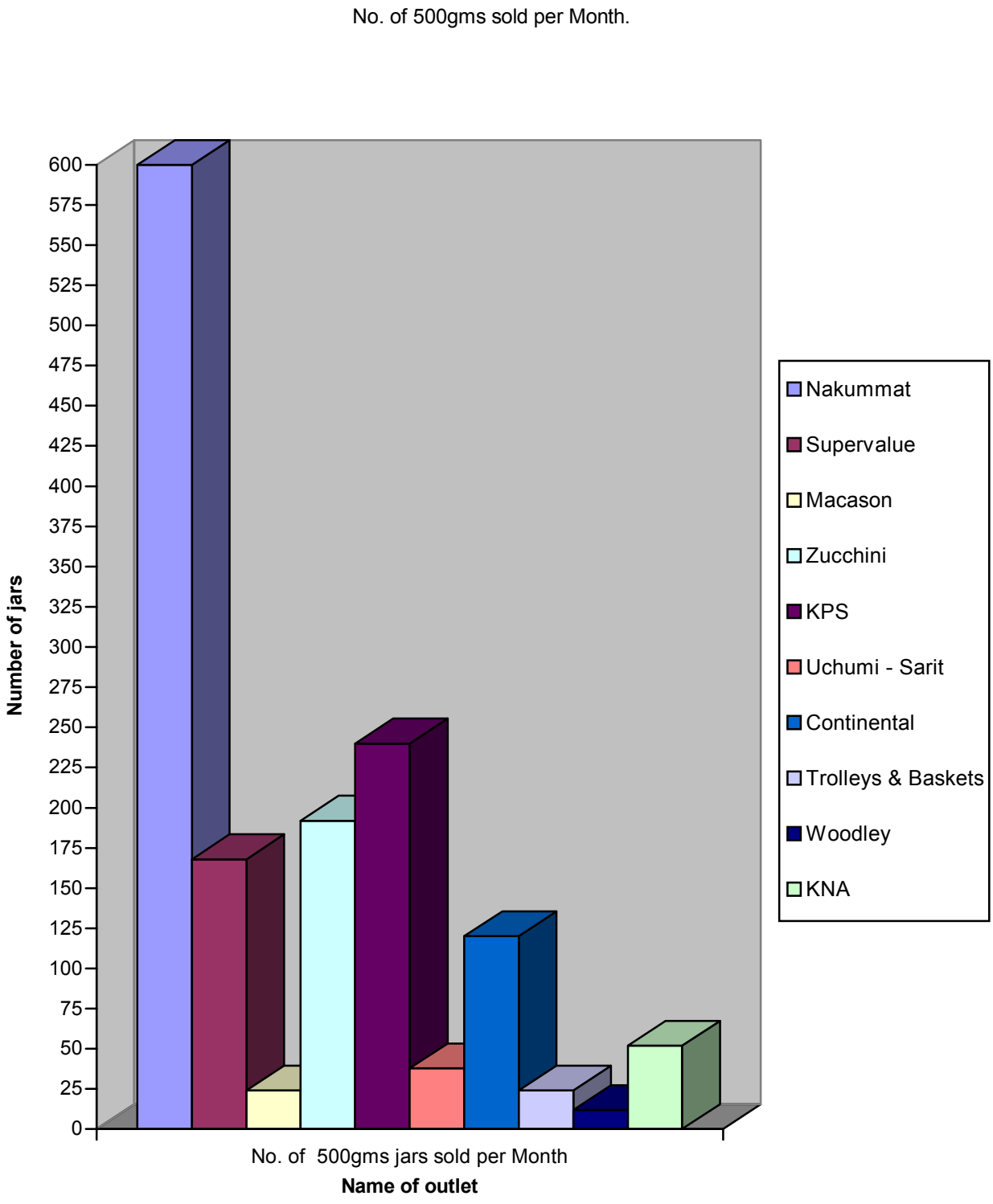
Honey Buying and Selling Prices:

OUTLET - 500g SIZE JAR	SELLING PRICE	BUYING PRICE

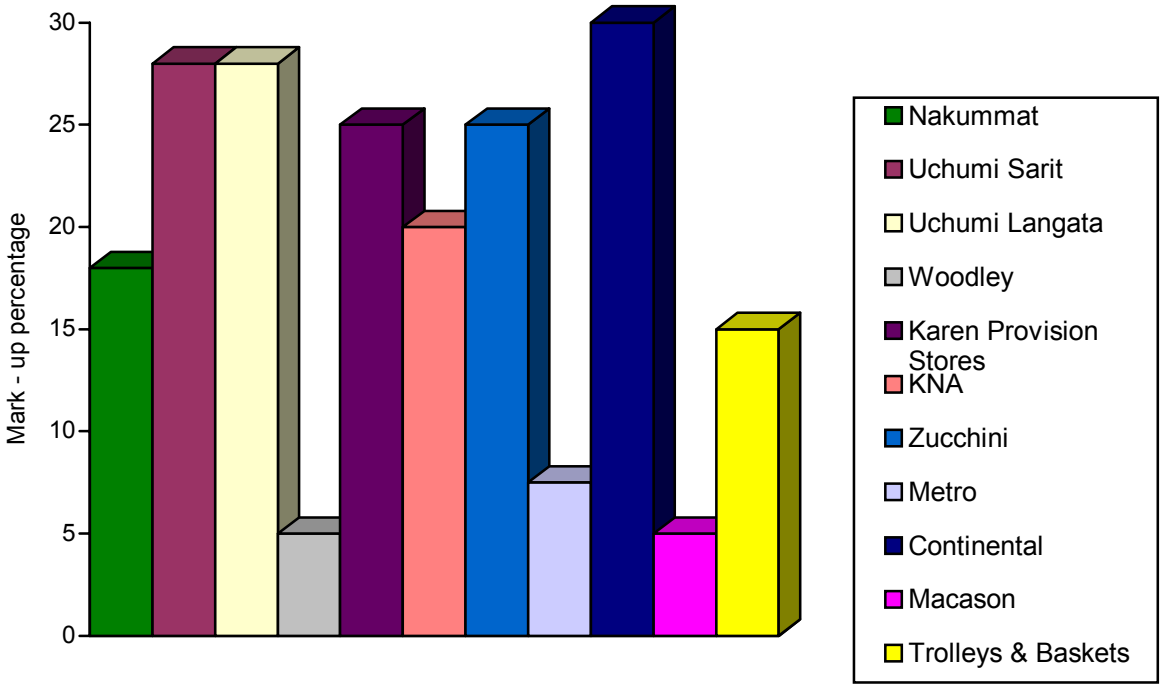
Refer to Excel Worksheets in Annex 4 for detailed information

Zucchini		
Minimum	125	69.25
Maximum	250	187.5
Average	91.25	130.43
Uchumi – Langata		
Minimum	85	61
Maximum	305	220
Average	151	108.75
Uchumi – Sarit Hyper		
Minimum	85	72
Maximum	276	235
Average	159.88	125
Trolleys and Baskets - Kasuku Centre		
Minimum	68	58
Maximum	68	58
Average	68	58
Nakumatt - Uhuru Highway		
Minimum	94	50
Maximum	269	233
Average	135.75	99.75
Supervalue Supermarket - Hurlingham		
Minimum	145	116
Maximum	205	164
Average	175	140
Woodley Grocers - Adams Arcade Shopping Center		
Minimum	275	260
Maximum	329	312
Average	311	294.66
KNA opposite the GPO City Centre		
Minimum	54	45
Maximum	156	130
Average	121.5	101.25
TOTAL Minimum	**116.37**	**91.4**
TOTAL Maximum	**232.25**	**192.43**
TOTAL Average	**151.67**	**132.23**

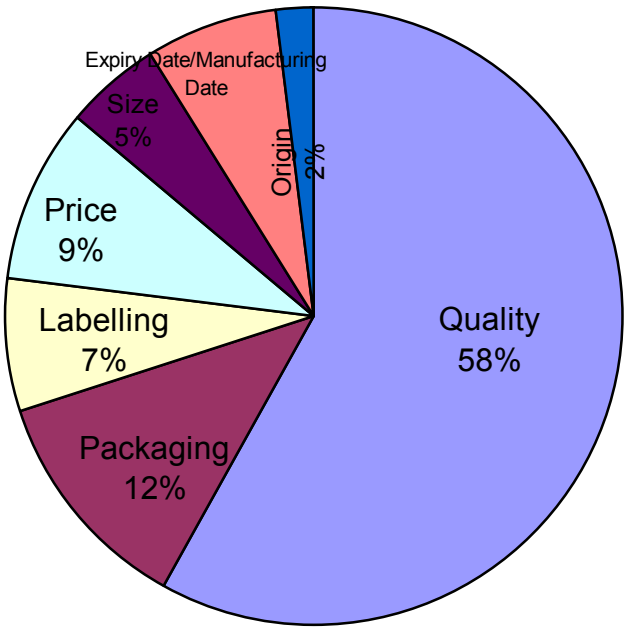
Total honey sales per month:



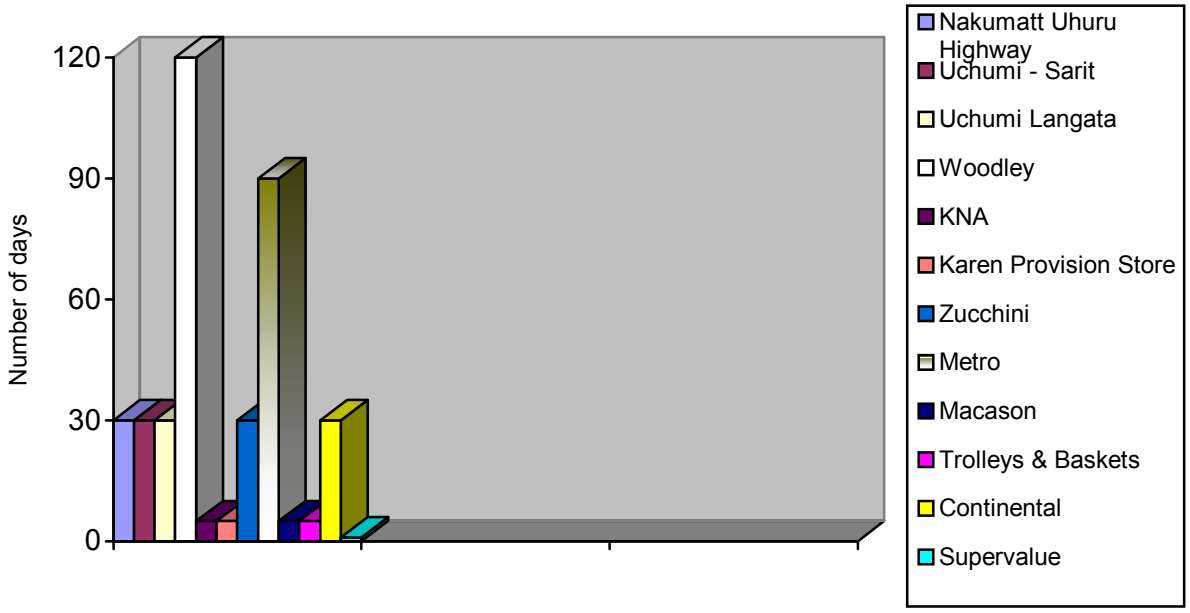
Mark – up on a honey (imported and local):



Retailer requirements or considerations when purchasing honey:



Outlets' terms of payment:



Note: the 0 value represents Cash on delivery

The following is a combined SWOT analysis of wholesalers and retailers surveyed:

Strength	**Weaknesses**
▫ Honey consumption is increasing as demand for sugar is decreasing. ▫ Local honey sells more than imported honey because of the quality ▫ Packing is good/good packaging ▫ Local honey has reasonable prices compared to imported honey ▫ There's a preference of local honey from upcountry as is good quality. ▫ Most brands meet KBS standards ▫ There are no problems with supply of honey as honey is delivered to the shop ▫ Consumers are loyal to some brands therefore constant demand exists ▫ There is a strong market for high quality honey	▫ Some local honey labeling should be changed/Poor labeling ▫ Supply of local honey sometimes difficult due to drought. ▫ Some producers sell honey very cheap i.e. produce low quality (or fake) honey ▫ Honey is generally expensive ▫ Processors must deliver to individual stores ▫ Some local honey has generated complaints of adulteration or a lot of syrup ▫ There are problems with supply (though this might be internal as they don't purchase directly from honey sellers) ▫ Most local honey crystallise when it stays on the shelve for long ▫ Consumers complain about adulteration of local honey ▫ Local honey quality fluctuates ▫ Baraka honey not in some outlets
Opportunities	***Threats***
▫ Retailers require certified and well packaged products ▫ Hasten the supply of local honey from upcountry. ▫ Should produce more honey comb honey as people prefer this type of honey ▫ Local honey producers should improve the quality ▫ Refiners and honey producers should promote and advertise honey sufficiently. ▫ Producers of honey should produce other bee by-products. ▫ Consumers should be educated on the use of honey to increase demand	

G. Key findings of consumer survey:

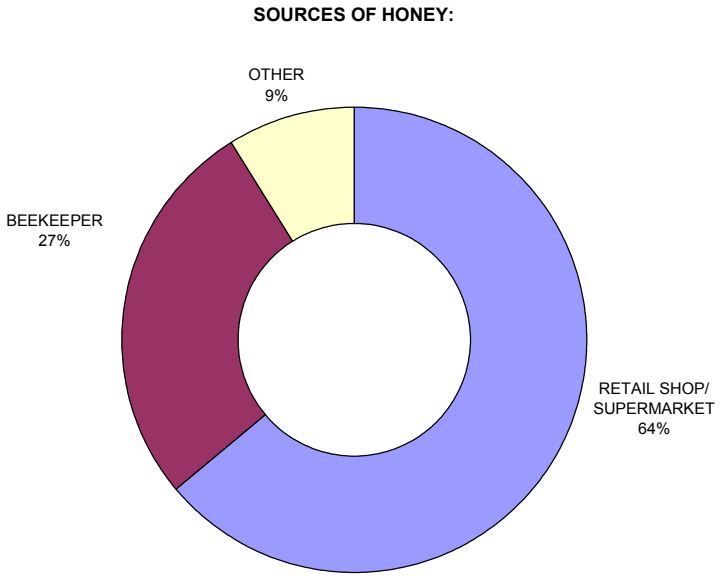
Introduction to the survey:

To find out what consumers think about honey a number of different research methods were used. Secondary information was collected both internal and external to the BDU. Additional primary information was collected through a consumer survey in the towns of Molo, Nakuru and Naivasha (a cross section of consumers from different social classes). Test marketing of local honey was also carried out in Nairobi at a major exhibition – 'FoodWorld2001' and feedback obtained from and observations made on consumer behavior.

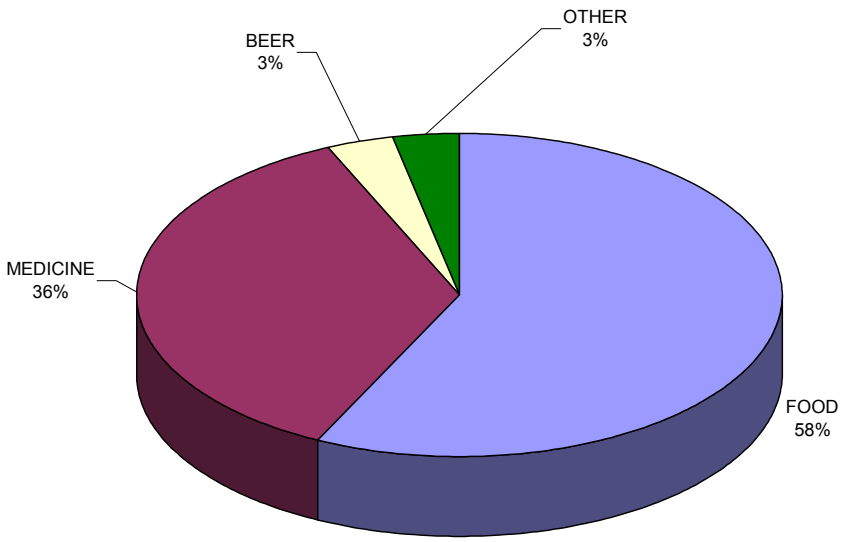
Results Summary

Some of the major findings of the research are:

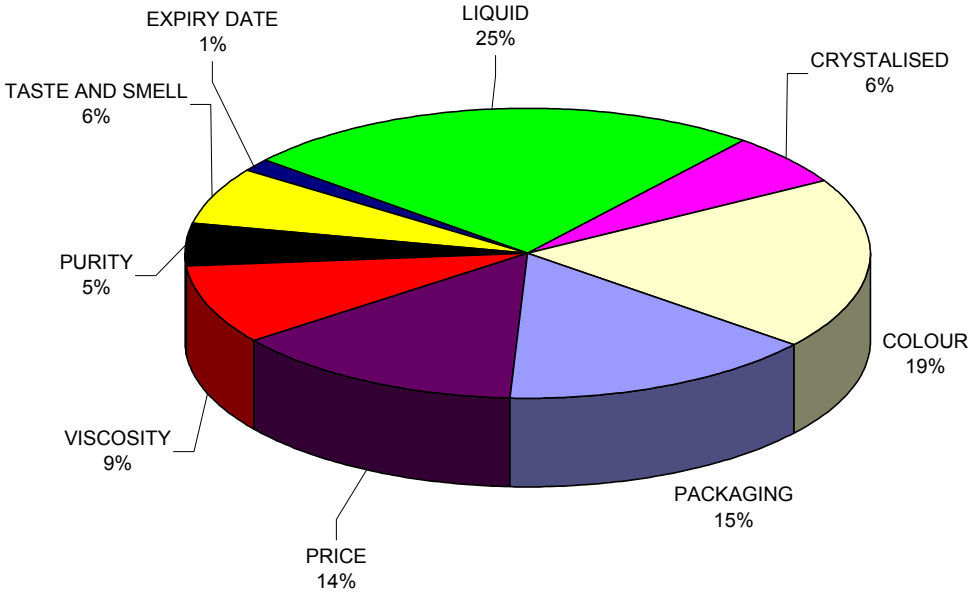
- Honey is widely consumed (60-70% consume honey) by Kenyans as a food and as a medicine.
- The bottled honey market can be segmented into three broad categories of consumers: 1. Wealthy Kenyans and Expatriates 2. Middle Class Kenyans and 3. Ordinary Kenyans
- The first category of consumer can afford to pay high prices but demands high quality products. The major competitors here are imported brands of honey. The second category demand high quality at more modest prices. For the third category of ordinary consumers the price is a major consideration and packaging and presentation are less important.
- Consumers prefer honey which is in its liquid form as opposed to it being solid and of a red/brown color.
- No particular brand of honey was identified as being dominant in the market during this study. **Availability** of a brand in the shops is a major factor as to why it is purchased.
- There is a large market for unrefined honey among certain ethnic communities in Kenya for making traditional beer and medicinal use. There is also additional interest in the use of bulk (not bottled) honey in the manufacture of biscuits and other commodities such as cough syrups.



USES OF HONEY:



FACTORS OF GOOD QUALITY HONEY:



H. Combined analysis of key informants survey:

Introduction to the survey:

The following is a combined analysis of key informant interviews.
Please refer to Annex 5 for individual SWOT analyses.

Results Summary

- Beekeeping is possible over 80% of Kenya in particular arid and semi-arid areas.
- Production of bee products is low relative to potential.
- Farmers lack skills in beekeeping management.
- Improved beekeeping technologies are not widely adapted.
- There is fake honey in the Kenyan market.
- There is a need for increased and improved stakeholder coordination.
- Develop three main strategies to develop beekeeping 1. Improved marketing 2. Better standardized honey 3. Increased supply of quality honey.

Strengths	**Weaknesses**
▪ Beekeeping has great potential for food security and employment creation ▪ Beekeeping is relatively simple requiring modest investment ▪ Beekeeping contributes to environmental conservation ▪ The sector is developing slowly with new private sector investment and transfer of new technologies ▪ A number of major bodies are currently involved in sector such as farms, NGO's and institutions ▪ KBA currently under going a revamp and have developed a strategic plan and ignited enthusiasm of beekeepers ▪ Processing and packaging is adaptable to small scale operations ▪ Beekeeping can be successfully carried out in 80% of Kenya especially ASAL ▪ Traditional beekeeping/gathering works in rural areas (but is dying in urban centers) ▪ Local upcountry economies are strong and can be exploited for honey sales ▫	▪ Kenya not meeting domestic demand for high quality honey therefore market is supplemented with imports ▪ Policy framework is needed to guide the sector ▪ No hard figures are available for honey production and sales ▪ High local prices ▪ Kenyan honey not seen as good quality in export markets ▪ Beeswax production not seen as economically beneficial business ▪ Production is low relative to potential and bee keeping is not seen as commercial ▪ Farmers lack skills on hive management ▪ No access to credit for farmers ▪ Limited resources and equipment of extension workers ▪ Improved beekeeping technology not widely adopted ▪ Crude processing methods or lack of processing information and equipment ▪ Limited outlets for equipment ▪ Marketing links for honey are missing or too informal ▪ Little value adding activities by farmers and producers ▪ A lot of honey is adulterated ▪ People buy on price not quality ▪ People buy fake honey believing it to be pure

	▪ Stakeholders working at cross-purposes ▪ Training programmes do not have ratified curriculum ▪ There is no economic way to secure bees and prevent theft ▪ Traditional beekeeping is dying in urban centers ▪ There is a now a lack of trees for making hives ▪ It is questionable whether the technology applied is appropriate to meet the requirements of the African bee ▪ KTBH is 40 years out of date and has design faults ▪ The availability of good quality glass jars can be a problem ▪ There is no long term success – honey brands come and go from retailers shelves ▪ People think the only market is Nairobi.
Opportunities ▪ High potential for beekeeping in ASAL areas = 80% of country ▪ Develop commercial beekeeping businesses ▪ Promote small scale cottage industries – 1 farmer and 10 hives ▪ Exploit comb honey, beeswax, propolis and pollen ▪ To develop KBA - to play a role in enforcing minimum standards and developing a code of conduct for sector/ gazette for new mandates/ pass on marketing enquiries and source honey supply on behalf of processors/ negotiate prices on behalf of producers/ source packaging on behalf of processors/ develop a database/ provide resource people/ harmonize syllabus for beekeeping training/ campaign on issues such as charcoal burning, use of pesticides, fake honey, etc/ to monitor Government policies and practices vis a vis beekeepers interests ▪ More networking and harmonization of stakeholders ▪ Using bees for pollination in farming ▪ Hold more field days/ demonstrations/ exhibitions and forums on promotion, networking and marketing ▪ Consumer education ▪ Credit for farmers and processors ▪ Promoting appropriate processing equipment ▪ Bulking of honey ▪ Training in quality	***Threats*** ▪ Declining bee population due to environmental degradation, use of chemicals and charcoal ▪ Illegal and adulterated honey in market ▪ High prices threaten exports ▪ Uneducated consumers ▪ Competition from imported honey ▪ Theft ▪ Unfair competition from subsidized groups or co-ops ▪ Chopping of trees ▪ KBA must not be involved in the trading of honey

▪ Use distributors in all major towns (even put honey into kiosks) ▪ Pack small quantities to fill up country demand of smaller volumes ▪ Exposure and exchange programme to share experiences ▪ Develop tourist and health markets ▪ Promote appropriate technology and demonstrate it – e.g. banana fiber basket hives ▪ Do more research and find out which hives have worked and where – e.g. what has happened to the KTBH's sold from Baraka over the years ▪ Promote entrepreneurial trade with entrepreneurs packing and selling from honey stands by the roadside ▪ Demonstrate what can be done and set examples ▪ Let supply and demand take over ▫ Always give cash for honey – no credit	

I. Stakeholder workshop objectives and findings:

Workshop Aim:

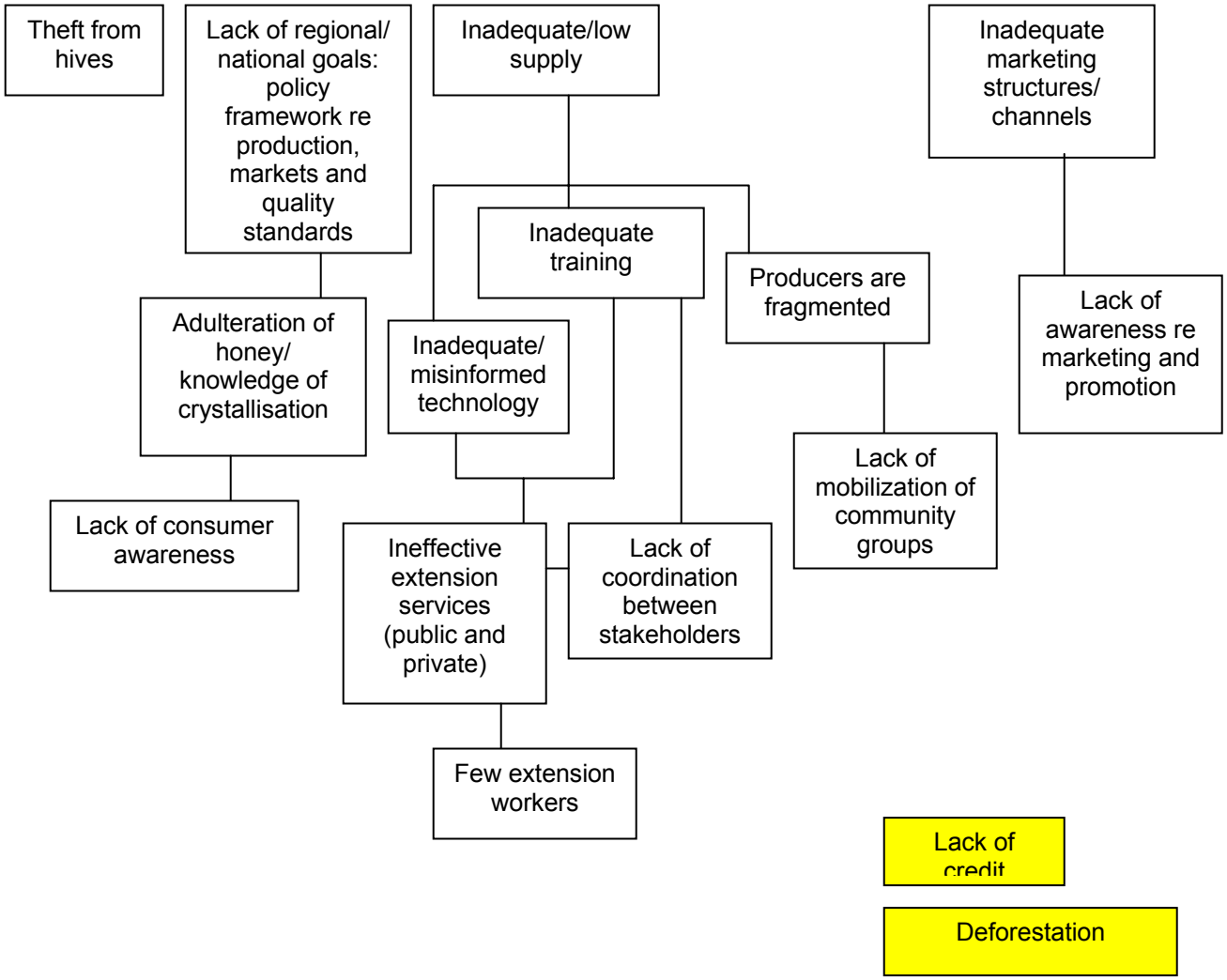
A workshop held with key stakeholders in the industry to arrive at a shared analysis of the problems facing the development of the apiculture industry, to develop a vision of the 'future desired situation' and to select the methods that can be applied to achieve it.

Workshop Objectives:

- To identify problems and establish a hierarchy.
- To prepare a cause and effect relations diagram.
- To analyse possible objectives and possible choices of strategy.
- To develop a means-end relationship diagram.

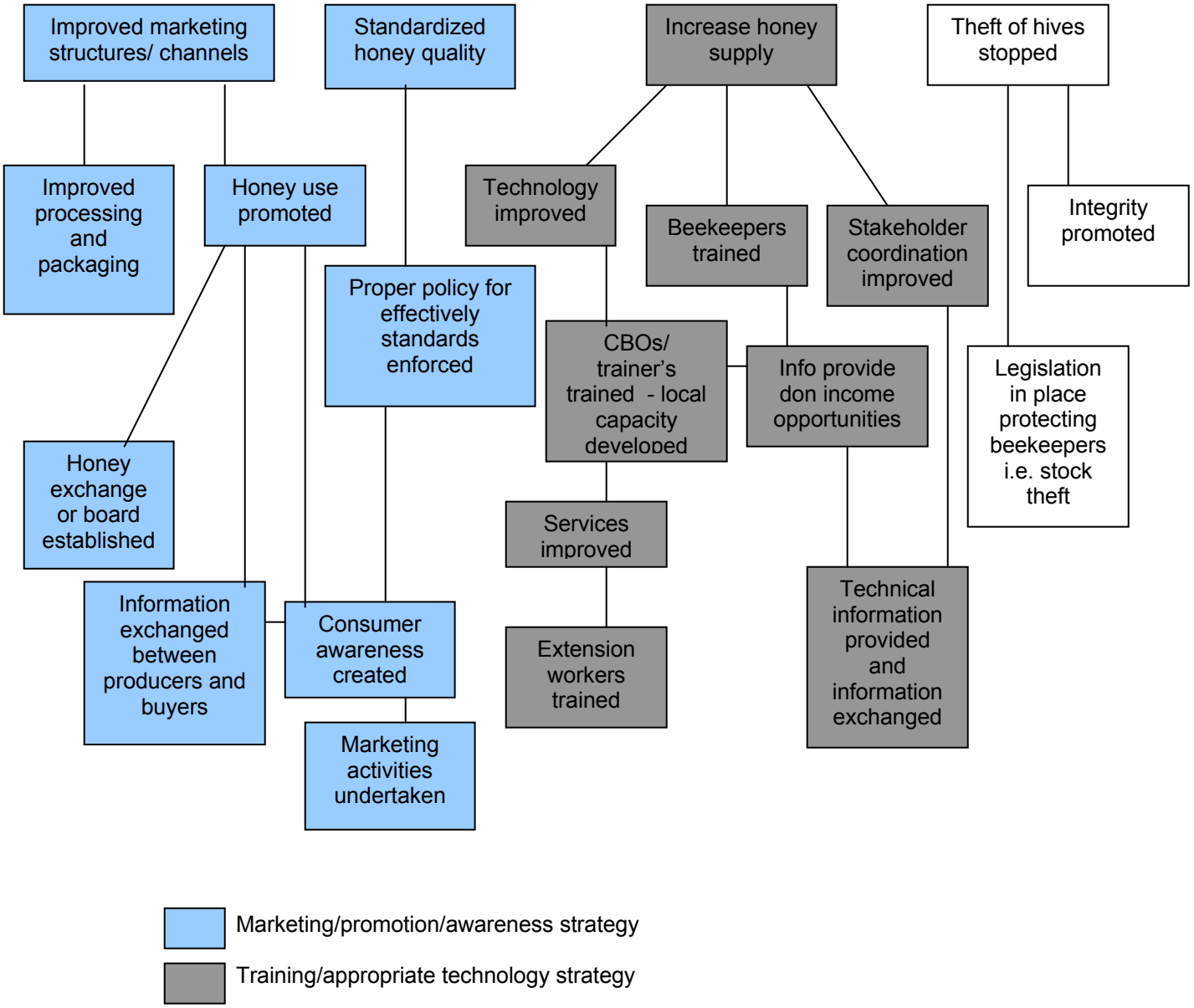
Outputs:

PROBLEM TREE/cause and effect diagram



Problems removed from tree by agreement of stakeholders

OBJECTIVE TREE/means and end diagram



J. Planning workshop objectives and findings:

Aim:

A workshop held with project planners to develop a log frame matrix setting out the intervention logic of the project. *(A log frame is a tool for understanding the purpose of the project, the strategy to achieve it and the means deployed).*

Objectives:

- To check the feasibility of the project.
- To establish and define the logical relationship between project activities, results, purpose and objectives.
- To provide the framework against which progress will be monitored and evaluated.
- To define the tasks to be undertaken, the resources required and the responsibilities of management.
- To describing the assumptions and risks that underlie the project.

Output:

The output of this workshop was an unfinished log frame included as annex 7 of this report. A second workshop was organised for January 2002 by the project planners to complete this log frame before completion of the project document.

5

CONCLUSIONS

A. Producers:

- The majority of beekeepers are still using traditional equipment and any intervention should address the needs of the majority as well as introducing better technology.
- **Beekeepers lack basic beekeeping skills** such as hive management and honey harvesting, processing and handling.
- The **majority of beekeepers have no access to extension agents promoting modern beekeeping methods** and little training.
- There is a strong local demand for honey and generally beekeepers say they are expanding their beekeeping or desire to do so.
- There is little known of the value of other bee products such as beeswax and most of this valuable commodity is discarded.
- Current threats to beekeeping include drought, improper use of agro-chemicals, deforestation and theft of hives and honey.

B. Equipment:

- The majority of beekeepers still use traditional systems of beekeeping. Those who do use modern moveable comb hives however generally lack other vital equipment such as beesuits and smokers. This tends to negate the advantages of the moveable comb hives.
- The KTBH hive needs to be adapted to suit local conditions i.e. hot or cold areas and not a 'one size fits all' approach.

C. Intermediaries:

- Intermediaries such as NGO's and Government site a lack of beekeeping skills among producers as one of the major problems facing beekeepers.
- There is a need to have a serious National body which represents the interests of beekeepers in Kenya.
- There is a need for awareness/promotion campaigns on beekeeping for both producers and consumers.

D. Processors and packers:

- There are low and inconsistent supplies of honey from disorganized producers resulting in stock outs which hinder the development of the market.
- Fake honey is a great threat with little faith in the Government agency responsible.
- There is a lack of skills and equipment among honey processors to ensure local honey is processed and packed to the highest standards.

E. Hotel/industrial buyers:

- The market for industrial honey is underdeveloped
- Quality of honey is a major concern
- The market for industrial honey is underdeveloped

F. Retailers & wholesalers:

- 75% of the honey on sale in selected outlets in Nairobi is imported.
- The majority of imported honey comes from Australia.
- 50% of respondents say the demand for honey is increasing

G. Consumers:

- 60-70% of Kenyans consume honey
- The market for honey can be segmented into three broad categories of consumers depending on the social class they come from. Marketing activities should be targeted to the different segments.
- Consumers generally prefer honey which does not crystallize.

H. Key Informants/Stakeholders:

- Beekeeping is possible over 80% of Kenya in particular arid and semi-arid areas
- Production of bee products is low relative to potential
- Farmers lack skills in beekeeping management
- Improved beekeeping technologies are not widely adapted
- There is fake honey in the Kenyan market
- There is a need for increased and improved stakeholder coordination
- Develop three main strategies to develop beekeeping 1. Improved marketing 2. Better standardized honey 3. Increased supply of quality honey.

6

RECOMMENDATIONS

Opportunities and recommendations for future project development:

A. Production:

- It is clear from the research carried out that there is a basic lack of beekeeping skills and knowledge. There is also very little assistance reaching the farmers in terms of effective and practical skills based training at farmer level. **It is recommended that any project focus on working practically with beekeepers as the core of its activities**. Working with beekeepers must consist substantially of working practically with bees. There is often too much emphasis on 'classroom beekeeping' the result of which is that farmers never gain the confidence and skills to carry out bee management.

- It is recommended that assistance be given to producer associations to build their capacity to form effective bodies to facilitate the cooperation of beekeepers for technical assistance and marketing purposes. This capacity building should include skills in small business management.

- Select pilot districts for the proposed project. Select farmers who are currently networked into groups, associations or cooperatives. Implement baseline survey. Implement workshops on group formation.

- Develop networks & group affiliations.

- Develop a resource center for beekeepers and other stakeholders at Baraka

- Implement an exchange programme where producers can learn by seeing what others are doing.

- Encourage producer associations (if appropriate) into small scale processing and packing

- Train producers in quality requirements: Use partners for extension work and monitoring of quality; Train in quality grading; Provide access to containers for honey collection.

- Any future project should also consider an awareness campaign on beekeeping to encourage and inform new entrants as well as existing producers.

B. Equipment:

Encourage the use of modern moveable comb hives. However the existing majority of beekeepers with fixed comb traditional hives should not be ignored. They should be given training on harvesting and handling quality honey and assisted to link with markets. This is an approach currently being undertaken by Baraka to develop beekeeping in southern Sudan. Information on the KTBH and other hives should be collected on an ongoing basis and trials carried out on the best hive design for different local conditions.

C. Intermediaries:

- Develop partnerships for service delivery to producers. Links should be fostered with Ministry of Agriculture beekeeping officers, NGO extension workers and church development agencies. The capacity of these existing extension workers should be improved through effective and practical training provided at Baraka.

- The project should work with Kenya Beekeeper's Association at a National level to build the capacity of the organization to represent the views of the different stakeholders in the industry. What is needed as a starting point is an effective forum where different key players in the industry can come together on a regular basis.

- Strengthen the capacity of Kenya Beekeepers Association through partnership in project specific activities with budgets prepared accordingly. Refer to Annex 9 for the Kenya Beekeepers Association Strategic Plan for 2001-2005. Consider the following:

    1. *Develop training materials and translate into regional languages*
    2. *Work with Kenya Bureau of Standards (KEBS) for enforcement of standards and shorter testing times of samples*
    3. *Lobby for policy reforms*
    4. *Provide guidelines and instructions on production, processing, packaging & certification*
    5. *Develop & disseminate production technology through field days & demonstrations*
    6. *Collect, compile & disseminate market information on beeswax opportunities (ref Annex 10: A Study of Marketing Opportunities & Constraints of Beeswax in Kenya)*
    7. *Write Code of Conduct for sector*
    8. *Organise and implement a honey exhibition*
    9. *Organise and implement a media honey promotion*

D. Marketing Strategy (hotel/industrial buyers/retailers/consumers)

From the above findings the following key recommendations are proposed to develop an effective marketing strategy:

- Develop a comprehensive database of:
    Producers
    Processors/packers
    Intermediaries
    Market outlets
    Donors

- Educate consumers on the many uses and benefits of honey and also on quality issues such as crystallisation (i.e. all pure honey will become solid – this does not mean that it has gone bad or is adulterated with sugar).

- Pilot approaches better and more consistent supplies of quality honey:
    - Collection centers
    - Delivery to door/ bulking
    - Bulking/collection
    - Bulking through intermediary

- Develop under exploited local and regional markets:

    - Work with distributors to develop markets
    - Liaise with exporters for a wider choice of packaging materials
    - Approach hotels and hotel chains
    - Approach wholesale bulk buyers
    - Develop a campaign to target smaller estate supermarkets in urban locations
    - Develop a campaign to target rural markets
    - Obtain organic certifications
    - Actively monitor/research movement of product sales

- Develop products for markets:

    - Smaller cheaper packaging for up country sales
    - Tourist/gift products
    - Comb honey
    - Beeswax and beeswax products
    - Bee pollen

- Develop a honey campaign:

    - High profile media honey promotion
    - Consumer education/ public awareness
    - Local promotion on honey use
    - Work with partners to develop videos and brochures
    - Work with KBA to implement a Honey Expo (ref Annex 11: Strengthening Community Management in Beekeeping & Natural Resource Management)
    - Develop point of sale promotions for honey

Key points of advice and recommendations for group structures and financial assistance:

It is not recommended that the project provide beekeepers with access to credit. Nevertheless the following approach has been developed and is recommended should project planners include credit as a component in the proposed project:

Credit as initial start up capital will be provided. Although the BDU would contribute to the loan fund, it is recommended that the college does not get involved in provision of loans as it is not one of its core activities. The leading micro finance institution in the region has been identified to support the potential project if required. Kenya Rural Enterprise Programme (K-Rep) provides advisory services and run a commercial micro-finance bank. It is recommended that the project use a credit product designed for agricultural lending with different terms and conditions to commercial bank lending. It is recommended that the project implement a revolving loan scheme using a village-banking concept. K-Rep will assist in developing the systems (policy and procedures) and train a project credit officer. The project will then deliver the credit component. It is recommended that the project give start-up capital with low interest thus focusing on a development agenda rather than a commercial lending agenda. It is expected that the project will sensitize farmers to loan/credit lending.

It is proposed that K-Rep Advisory Services train the community, with the objective of establishing a sustainable institution (or number of) that has strong local ownership and participation. It is foreseen that this institution will take the form of a village bank or a Credit Association (CA). A number of CA's may be formed by the project determined by geographical boundaries and number of members in each group of beekeepers. It is advised that no more than 6 groups of beekeepers (or 200 members) be represented by each CA. A central committee is formed with representatives from each beekeeping group to administer loans, trained and advised by the project credit officer. Interest is paid to the committee not the project. Insurance systems can also be established using the committees. Based on the principles of CA; the Association will provide start-up capital to small-scale beekeepers in an identified region. The start-up capital will enable the beekeepers to purchase equipment. K-Rep Advisory Services will provide technical assistance to enable the CA to provide start-up agricultural loans, initially, but could give other types of loans later, as the demands and needs of the community dictate. However, the CA will have to take into account the seasonality of small farmer's cash flow in drawing up its systems. As there will be a lot of money flowing in and out of the community, the CA will provide savings services as well. Introduction of savings into the CA activities will also create the discipline needed for micro-finance activities.

K-Rep Advisory Services will use participatory approaches to train the community, help them derive their financial needs and consequently the kind of financial services that would effectively meet those needs. The community will manage the CA formation process but K-Rep Advisory Services will facilitate the process. The entire structure of the CA will be completely administered by the community. Using its constitution, the CA will function through its various organs and committees namely, Annual General Meeting (AGM), Credit Committee and Audit Committee. The main decision-making organ is the AGM. It appoints the CA Management Committee and the audit committee from among the CA shareholders. The CA management committee will in turn appoint the credit committee. The Project Officer will also be a non-voting member of Management committee.

The CA constitution will incorporate checks and balances to ensure sustainable administration that is also transparent and open. K-Rep Advisory Services will offer appropriate training and technical assistance so that community participation is constantly expanded. This will enable the CA to continuously develop financial services and activities that respond to the community's self identified and articulated needs.

It is recommended that during the proposed project duration K-Rep would provide two-day technical back up/ training to the Project Officer, CA shareholders, Management Committee, Credit Committee, and Audit committee, as may be necessary, every six months.

Loan capital for the project should be determined at 100% for year 1. Reflows of ¼ can be expected each year. Determine loan capital of 75% for year 2, 50% for year 3 and 25% for year 4. Repayment of 90% can be expected. Apart from BDU's initial loan capital fund, the community will provide part of the loan capital by buying shares in the CA. This will increase the loan fund and also give the shareholders (community) right to ownership of the CA. The community provides governance and management of the CA through its participation in the various committees. K-Rep Advisory Services will provide necessary technical training to enable the CA to gain credibility within the community and therefore be able to attract local financial resources in the long term.

In addition to contributing to the loan fund, BDU will employ the project officer for this activity for the duration of the project. K-REP can assist in developing a job description, advertising, interviewing and recruiting an appropriate credit officer. It is recommended that a credit officer be paid a good salary incentive of 20-28,000/= per month before taxes. At the end of the project the project officer will be hired and paid by the CA. It is expected that the CA will have built a strong client base for it to earn enough revenue to pay for its expenses including the project officer's

personnel costs. It is assumed that it will take approximately 3 months to design systems and train an officer with an evaluation and refresher training after a further 3 months.

It is recommended that the project give start-up capital only and thereafter refer clients to an existing commercial and business oriented micro-finance institution such as Kenya Women's Finance Trust, K-REP Bank, Faulu, Vintage Management Ltd and Village Financial Services Association.

**Please refer to Annex 8 for detailed Terms of Reference to Establish a Credit Association For Beekeeping Development Unit (BDU) including budget and schedule of activities.*

ANNEXES

(Please refer to Baraka Agricultural College for further details – baraka@sustainableag.org)