



REPUBLIC OF MOZAMBIQUE

External Market Task Force

External Market Study No. 3 (6)

ANNEX 6 TO THE STUDY ON THE EXPORT MARKETING PROSPECTS OF SIX SELECTED MOZAMBIKAN COMMODITIES FOR THE SOUTH AFRICAN MARKET

REPORT ON HONEY

This product report forms part of an overall report and should be read in conjunction with the Main Report that covers general items regarding all six products and the market evaluation. Also, these reports make suggestions based on certain assumptions and market conditions. Conclusions are derived from interviews and experience collected from a variety of sources. Although all the information recorded has been collected from reputable sources and in good faith, the External Market Task Force cannot be held responsible for the accuracy or the lack of success in marketing any of the researched products.

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Supported by the EC/FAO Facility for the Provision of Consultancy Services and
the Marketing Management Assistance Project MIC/FAO/EC

Maputo

March, 2004

TABLE OF CONTENTS

		PAGE
1.0	Introduction	1
2.0	Mozambique Supply Analysis	2
	2.1 Production	2
	2.2 Demand for honey in Mozambique	3
	2.3 Prices at the Consolidation Points	4
3.0	South African Market Analysis	4
	3.1 Production	4
	3.2 Consumption	5
	3.3 Marketing and Prices	5
	3.3.1 Honey/Beekeeping by-products	6
	3.3.2 Honey	8
	3.4 Imports and Regulations	10
4.0	Pricing and Logistics Analysis	12
5.0	SWOT Analysis	13
6.0	Conclusions	15
7.0	Recommended Future Action	16
8.0	Contacts Interviewed	
List of Tables		
	Table 1 Honey Production in South Africa	4
	Table 2 Honey Imports into South Africa (1999 – 2002) (HS Code: 0409)	8
	Table 3 Import Duty Structure for Natural Honey	8
	Table 4 Estimated delivery price in Johannesburg (Per Metric Tonne)	10
	Table 5 Price Competitiveness of Honey Exports to South Africa	11
Appendices		
	Appendix A Prohibited and restricted goods index	17
	Appendix B Procedure for the application, administration and allocation of rebate permits for importation of natural honey.	18
	Appendix C Import conditions for pure Honey	20
	Appendix D Regulations relating to the grading, packing & making of Honey and mixtures of Bee Products intended for sale in South Africa.	22
	Appendix E Codex regulations on Honey (will be made available in electronic format)	31
	Appendix F Costing analysis (Also available electronically)	32

Analysis of Honey as a target product for the development and export from Mozambique and in particular to South Africa

1. Introduction

Humans have kept bees for the production and harvest of honey since 4000 BC. In past societies, honey was of great importance, particularly for its medicinal purposes. It was believed to be a powerful aphrodisiac and a valuable antibacterial wound dressing. Today, honey is produced in almost every country of the world, with 90 per cent being eaten directly as table honey. The remaining 10 per cent is used as an ingredient in a diverse range of products.

The most common types of honey are:

- Comb honey. This is honey-filled beeswax comb as stored directly by the bees, the only unprocessed honey.
- Liquid (extracted) honey that is prepared by cutting off the wax cappings and whirling the comb in a honey extractor, where centrifugal force moves the honey out of the cells, or by pressing the honey out of the comb.
- Granulated (creamy) honey that is made by blending one part finely granulated honey with nine parts liquid honey. This solidified honey can be re-liquefied by warming it up. Honey that is partially granulated is not going bad, just crystallized.
- Chunk honey, which is comb honey in a jar with liquid honey poured around it. Both liquid honey and comb honey should be stored properly to maintain their quality.

Different flowers produce different quantities, qualities, colours, consistencies and flavours of nectar, and it is this variation that is responsible for the many different types of honey available. Today most *commercial* production is based on improved¹ (modern) hives, which can be moved from one site to another to follow the flowering of the plants. The most common beehives are the vertical mobile hives, which follow the model developed by Langstroth. However, in Mozambique most of the honey is still produced by the smallholder farmer ('*Sector Familiar*') that mainly uses traditional hives².

¹ The modern mobile hives can be vertical or horizontal and are based on a wooden box fitted with wooden frames holding wax-moulded sheets used by the bees as a base for the combs. Besides the facility of inspection, the major advantages of modern hives are (i) the sizes are universal and parts are easy to build and freely interchangeable, (ii) honey can be extracted by centrifuging after which the emptied comb (frame) is reinserted into the hive to be refilled by the bees, and (iii) as a result of the re-use of the combs, honey production can be increased up to about 20 kg/year/hive since bees don't need to rebuild the comb and therefore can produce honey instead of wax.

² These hives are built from low cost locally available materials. The most common are *tree bark* (hanging on trees), and *ceramic pots* (laying on the ground). These are fixed hives where the combs are fixed by the bees on the walls and no inspection can be made.

2. MOCAMBIQUE SUPPLY ANALYSIS

2.1 Production

Mozambique has a long tradition of honey production where approximately 70 per cent of the honey producers are in the '*Sector Familiar*' producing mainly from traditional hives. Honey yields using the traditional hives are usually quite low around 5 to 10 kg/year/bee hive, which is much lower than the production possible from modern hives (see footnote 1 – 20kg/hive/year). Small private associations with modern and transition hives make up the other 30 per cent of production. No official production statistics on honey production exist in Mozambique, but informed sources estimate that Mozambique has the capacity to produce some **3600 MT** per annum. Gorongosa (Sofala Province), and Tambara, Guro and Sussundenga (Manica Province) are probably the most important honey producing regions in Mozambique. Indications are also that carry-over stocks from the 2001/2002 season exist amounting to about 15MT in Sofala Province and 8MT in Manica Province.

A few development programmes aiming at increased household income have been instituted with an acceptable degree of success in the use of traditional hives mainly in the Manica and Sofala provinces. A few producers mostly from Maputo and Gaza Provinces are now also using the modern mobile hives.

Since 1982, following the establishment of the Beekeeping National Programme MADER-DNFFB became involved in extension and dissemination of beekeeping techniques, with intensity and interest levels varying with time. More recently, with the support from MADER and a few Non Government Organizations (NGO's) 'Honey Houses' (*i.e. support and advice centres established by the Maputo Beekeeping Association*) and a few honey projects were implemented. One of the outcomes was the establishment of a cooperative in Maputo, which buys and sells some of the honey produced south of the Save River (Provinces of Maputo, Gaza and Inhambane). The cooperative also has a shop in Maputo that sells 75-100 kg of honey every month. Another programme was established by the Foundation Against Hunger in Gorongosa with support from the Manica Project. The Chimanimani Honey Project (Manica) that started in 2000 with funding from the Ford Foundation has an estimated capacity to produce about 20 MT of honey a year with average yields around 20 kg/hive/year that are obtained from two harvests per annum.

In Mozambique, beekeeping is also an important tool for environment preservation. With the introduction of improved hives (mobile vertical hives) the need to remove the bark from trees, thus killing them, is reduced, thus saving many trees from destruction. In Gorongosa, Sofala Province, alone a survey mentioned that at least 7000 trees are killed every year to remove the bark to build traditional hives. On the other hand, with the use of improved hives and techniques, there is no need to use smoke and fire to keep the bees away, maybe even kill them, during the harvest of honey, saving the bees from periodic destruction.

2.2 Demand for honey in Mozambique

Honey produced is consumed at home or sold whenever the family has access to the main roads. Very few traders are involved in honey marketing mainly because of the need for packaging and the fragility of the containers used. Anecdotal estimates place Maputo at being able to absorb at most 50MT a year of potential production. Taking into account the estimated carry-over stocks it

appears that most of the production is consumed in the domestic market, but cognisance should be taken that these figures are at best “guesstimates”.

2.3 *Prices at the consolidation point*

Prices of honey are quite variable; the retail price of traditional honey (often with crystals and bits of wax), ranges from MZM20 000 to MZM50 000 (USD0.83 - USD2.08)³ per 750 ml bottle in the rural areas and along the roads.

Processed honey, filtered and/or centrifuged, heated, and packed is sold in Maputo for MZM50 000 to MZM60 000 (USD2.08 - USD2.50) per 500ml bottle retail. In Sussundenga, Manica Province, the Honey House sells several qualities of honey for about MZM35 000 (USD1.45) per 500 ml bottle retail.

In the Chimanimani Honey Project in Manica Province, a price of MZM15 000 (USD0.62) per kg is paid to the producer at the farm gate. After allowing for transportation from Sussundenga and filtering and storage the total producer price goes to about MZM25 000 (USD1.03) per kg. At present they are selling honey for MZM35 000(USD1.45) per 500ml retail.

As stated in the general report, there are no formal price statistics for honey, thus the prices used in this study are prices observed during the field visits. This means that the prices are uncertain and it is not possible to evaluate its development over time. **Based on the above information and further investigation, the EMTF suggested that MZM35 000 (USD1.45)/kg in Chimoio and MZM45 000 (USD1.81)/kg in Maputo would be a better ‘guesstimate’ to use in the absence of empirical data.** These guesstimates include all the different factors of commercialisation such as transport to the consolidation point, processing and packaging.

In terms of packaging it is worthwhile to note that the ‘Sector Familiar’ has no specific packaging standards and they tend to pack honey in any available bottle (e.g. 750ml containers). In areas where the production of honey is more structured and regulated, producers pack honey in 500ml plastic bottles/containers. Some of the honey associations, however, store honey in large stainless steel settling tanks before packing or bulk dispatch.

³ The exchange rate for the Mozambique Metical (MZM) to the USD is based on the exchange rate during the period of the study, from 01 June 2003 to 30 September 2003. This was **USD1.00 = MZM24050**.

3. South African Market Analysis

3.1 Production

According to Du Toit (2001), there are more than 3 000 beekeepers in South Africa, of which, less than 1 000 belong to organised beekeeping associations. It is estimated that these beekeepers operate 75 000 beehives, using almost exclusively, the Langstroth-hive. Table 1 shows the production of honey in South Africa from 1911 to 2001. South Africa has always been more-or-less self sufficient in its honey requirements, with small quantities of honey being exported to European countries from time to time if and when local surpluses occurred (Du Toit, 2001). Nevertheless, Moody (2003) is of the opinion that the current honey production is decreasing and that shortages will most likely be filled with imports.

Table 1: Honey production in South Africa

YEAR	Total honey production (KG)	No. of hives	Average yield per hive (kg)
1911	49 302	no data	-
1917	250 189	64 921	3,85
1922	176 158	no data	-
1936-37	519 696	71 266	7,29
1945-46	404 839	58 294	6,94
1949-50	417 928	56 589	16,25
1954-55	312 089	41 008	7,61
1966	354 197	48 777	7,26
1974-75	1 893 625	60 389	31,36
1988 (census unpublished)	1 465 000	66 594	21,2
1989 (census unpublished)	1 946 000	72 092	27,0
1990 (census unpublished)	2 097 000	83 887	24,9
1991 (Coop estimate)	2 250 000	75 000	30,0
1992 (Du Toit)	1 560 000	65 000	24,0
1993 (Du Toit)	1 092 000	52 000	21,0
1994 (Du Toit)	1 380 000	60 000	23,0
1995 (Du Toit)	1 560 000	60 000	26,0
1996 (Du Toit)	1 500 000	60 000	25,0
1997 (Du Toit)	1 400 000	55 000	25,4
1998 (Coop estimate)	1 600 000	55 000	29,0
1999 (Coop estimate)	1 700 000	55 000	30,9
2000 (Coop estimate)	1 700 000	60 000	28,3
2001* preliminary	1 400 000	60 000	23,3

Source: The Department of Census and Statistics, the South African Bee Journal, the South African Professional Bee-Farmers Cooperative and Du Toit.

3.2 Consumption

Local consumption of honey is believed to be stable at between 1 700 and 2 000 tons per annum. Currently there is no national marketing strategy in place to stimulate demand for honey.

Magnuson (2003) indicated that no official market research on consumer preferences exists, but based on experience and hearsay he stated that honey with lighter colour sells a little easier. Consumers do not like granulated honey, but if it is creamed they are willing to pay extra, whilst **darker honey is seen as healthier for medication purposes**. Breslin (2003) from Woolworths stated that there is a shortage of honey in South Africa and they have been requested by their customers to stock special health varieties of honey. From 3.1 above it is deduced that South Africa produces ± 1 500MT per annum while the consumption is in the region of 2 000MT per annum.

3.3 *Marketing and Prices*

The average price for honey to the wholesaler in South Africa is around ZAR18 (USD2.77)⁴ per kg. (Between June and September, 2003 the approximate retail price, depending on the store, was about ZAR15 - ZAR22 (USD2.31 – USD3.38) per 500g. However, due to the drought and some bee diseases in South Africa, the price in December 2003 rose to approximately ZAR48 (USD7.38) per kg.

3.3.1 Honey/Beekeeping by-products

Apart from honey itself, various other products can be derived from beekeeping. For example, beeswax is a very sought after product since it has various applications. Beeswax is used in, amongst others, the manufacturing of cosmetic products, furniture polishes, candle making, for metal castings and modelling, food processing, textiles, printing and medicine. Beeswax is also a much more stable product over time and it is easier to handle and transport. However, according to Foster (2002), note should be taken of the fact that the processing of wax for cosmetic applications are costly and the available technology in South Africa is limited. It is also important to recognise that different beekeeping technologies will yield different ratios of honey to wax. For example, according to Magnuson (2002), high technology yields less wax and more honey, whilst for low technology the opposite is true. According to Foster (2002) and Watson (2002), there is currently a shortage of wax for exports since most of the beekeepers recycle the wax in their hives. Other products include, e.g. Apitherapy/Api-cosmetics, Mead, honey liqueur and honey beer.

The following website is also helpful to this study and encompasses various aspects of beekeeping and its products <http://www.beekeeping.com/index.us.htm>

Apitherapy products comprise a range of hair, skin care lines and are based on the natural beneficial properties of honey.

Mead is the legendary drink made from honey and is one of the earliest alcoholic drinks made by mankind.

Honey Liqueur is a sweet, aromatic cocktail or after-dinner drink made with finest quality honeys and has an alcohol content of about 24%.

Honey Beer is a dark bitter-sweet invigorating brew. The alcohol content is 7%. It is available in 375ml glass bottles.

⁴ For the purposes of this report, the average exchange rate for the period, 01 October 2003 to 31 December 2003 also taken from the official South African Customs and Excise published rates, i.e. **USD1.00 = ZAR6.500**

Buyers of honey by-products and wax include Evenrun Beeswax, Fleures Honey Products and Honeybee Foundation and Products. *(See the contacts list at the end of this report)* According to Watson (2002), Evenrun Beeswax buys wax from beekeepers for the production of foundations. They require **absolutely raw wax** (un-purified/un-refined) direct from the hives. After removing the wax needed, it is re-circulated to producers who have the option of selling their wax and foundations back to Evenrun Beeswax, who then deducts 3 to 5 per cent for the cleaning. Evenrun Beeswax has capacity to clean up to 500kg of wax at a time. Although there is a possible market in South Africa for Mozambique beeswax, it was not investigated separately. However, if the matrices as explained in the Main Report are used and 20' shipping containers are utilised, then the same shipping cost structure will apply (EXW, FOB/FCA and DDP prices.)

3.3.2 Honey

Fleures Honey Products produces honey and distributes nationally. According to Foster (2002), they are supplying approximately 50 per cent of the domestic market demand through 1500 retail outlets. Honey is mainly bought from about 300 local producers. However they have imported when shortages are experienced. Their requirements are:

- *good quality in terms of **smell, colour, taste and purity**,*
- *presented in bulk containers of between 50 and 300 kilogram per drum with plastic inner-linings, and then repackaging into smaller containers*

Foster (2002) mentions that the problems they experience with imported honey from countries, such as Zambia, Zimbabwe and Malawi is that their methods of production are very primitive, which results in impure honey and wax requiring higher costs for cleaning. Furthermore, the availability of usable drums to transport honey is limited and will involve additional cost to supply. Transport infrastructure and distances are also a problem. These problems result in lower prices being paid for honey and wax from these counties.

Honeybee Foundation and Products have developed many retail and wholesale aspects of beekeeping. Their products include protective clothing, small tools, honey room equipment, hives/beeswax, "edutainment," books/video, apitherapy/api-cosmetics, mead/honey liquor/honey, beer, honey confectionery, eco-tourism and franchise ventures.

Honeywood Farms produces between 10 to 15 tons of honey, which they pre-pack for sales. They, however, also market honey in bulk. Moody (2003) indicated that he would be interested in buying honey of a good colour and smell and it would also be important for him to identify the feeding source of the bees. He quoted prices between ZAR15 (USD2.31) to ZAR17 (USD2.62) per kg. Another important issue raised by Moody (2003) is whether he would be able to visually inspect and evaluate the honey before buying it. This also raises questions regarding logistics if importing from Mozambique, e.g. how will consistency of supply be guaranteed, will imports be facilitated by an agent or will marketing be done on a buyer to seller basis, timing and costs.

Necta Honey Farm is not only a producer of honey but also operates a honey bottling plant; one of only two that bottle pure **South African produced** honey. Van Zyl (2003), the owner, states that this plant currently bottles approximately 150 tons per annum, which includes their own honey as well as honey bought from other producers. The honey is also bottled according to the feeding source of the bees. Hives are moved to specific areas, close to crops or other plants for

the duration of the flowering period of the plants. The reason for this is to ensure that the bees do not have to fly too far for feeding. He stated that it is not economical for bees to fly more than two kilometres to feed. This practise also enables him to class the honey according to the source of feeding.

In accordance with his agreements with his buyers, his plant is registered according to Hazard Analysis Critical Control Point (HACCP) regulations and is inspected by the buyers on a regular basis. Due to this and the fact that the end product is certified as South African honey, he is unable to use his current facilities for the handling of imported honey. However, he indicated that he would be willing and able to erect additional facilities and handle an additional 100 tons per year. He quoted prices of between ZAR12 (USD1.85) and ZAR15 (USD2.30) per kilogram for clean, good quality honey. The honey must be delivered in containers treated with food liners and all these costs must be included in the price. Van Zyl (2003) also indicated that he currently buys between 5 and 10 tons of beeswax per annum from local producers for cleaning and production of foundations for the producers. He also said that he might be able to develop a bigger market of beeswax users and that he will be willing to clean imported beeswax further.

Sally Williams Natural Honey Nougat utilises 1 ton of honey per month in the production of natural honey nougat. According to Swennson (2003), they are buying pure South African produced honey from one supplier. The honey must be *Kosher*, light in colour, low in scent and not too sweet. The nougat is registered as *Kosher* and thus all inputs and the production process must also be *Kosher*. The suppliers of all inputs must also be certified *Kosher* producers. The colour of the honey must be as clear as possible since it influences the colour of the nougat.

It was indicated by Swennson (2003) that they are interested in negotiation for the procurement of honey from Mozambique, but it must also be *Kosher*, delivered to their doorstep seeing that they do not own large enough trucks for the transportation of bulk packed honey. They would like the honey to be in drums of 300 kilograms that are also resistant to continuous heat. The current containers are made of steel because the honey is kept warm on barrel heaters to ensure that the honey is more fluid for dispensing purposes. The honey must also be readily available because they only store one month's supply. Interested suppliers from Mozambique should provide a 5 kilogram sample for testing and deviations from the specifications will be negotiated. Furthermore, it will be preferable for the appointment of a person responsible for the importation and delivery of the product at the correct time and place.

Woolworths - From a retailers point of view, Oliver (2003), states that they do not stock any products that might imply a health risk to consumers. That is, they do not stock any food that is irradiated, contains Tartrazine or any GMO products. He stated that if there is any way to avoid the irradiation process, Woolworths will definitely be interested in future negotiations because there is currently a noticeable shortage of honey in South Africa. This view was supported by Breslin (2003) Woolworths Cape Town.

3.4 Imports and Regulations

It should be noted that when one studies the statistics of Honey imports (Table 2), there is a consistent growth of honey imports over the last four years, with the majority coming from New Zealand during 2001 and then from China in 2002.

Investigations revealed that one of the problems related to exports to South Africa from Mozambique is the demand of light coloured honey. As mentioned by Mrs. Tecla David, coordinator of the Chimanimani Honey Program in Manica, this type of honey is being produced specially in the Macossa region.

Table 2: Honey Imports into South Africa (1999-2002) (HS Code: 0409)

Country	1999 Imports		2000 Imports		2001 Imports		2002 Imports	
	Quantity kg	Value ZAR	Quantity Kg	Value ZAR	Quantity kg	Value ZAR	Quantity kg	Value ZAR
China	197	105 196			19 720	221 974	338 215	3 532 201
New Zealand			100 500	894 534	300 152	3 033 387	40 229	611 772
Netherlands	324	4 433					2 700	84 250
Zaire							780	5 754
Greece							216	2 489
United States			62	3 132	46	1 521	55	568
Iran, Islamic Republic of			7 546	48 655	199	3 002	10	41
Australia	242 670	2 371 935	261 240	2 692 469	38 080	438 298	1	138
Italy	27	833					1	73
United Arab Emirates							1	24
Argentina					117 340	1 175 491		
Zimbabwe	1 245	7 538	4 520	2 255	5 482	2 698		
Uruguay					48	44		
Kenya					42	3 941		
India					37	511		
Poland					16	521		
Taiwan, Province of China	24	430	33	693	12	260		
United Kingdom	56 100	423 441			2	59		
Hong Kong								
Zambia	1 000	7 342	29 967	32 070				
Switzerland								
Thailand			2	27				6
Israel				184				
Ireland								
Egypt								
Saudi Arabia								
Bulgaria								
France								
Lebanon								
Germany	12	211	15	239		464		
Tanzania			60	153				
Indonesia			1	3				
Grand total	301 599	2 921 359	403 946	3 674 414	481 176	4 882 171	382 208	4 237 310

The import duty structure for honey being imported into South Africa is shown in Table 3. Since Mozambique is a member of SADC it has a tariff advantage over non-SADC members currently exporting to South Africa.

Table 3: Import Duty Structure for Natural Honey

0409.00	SADC	EU	Other Countries
	Free	22%	22%

The first requirement for the imports of natural honey into South Africa is that the importer must apply for the importation of controlled goods in terms of the provisions of the Agricultural Pests Act, 1983 (Act No. 36 of 1983). The National Department of Agriculture (NDA) will issue a permit

with the required conditions (See Appendix C and D). The most important requirement is that all natural honey imported must be irradiated at a specified facility in South Africa. The cost of the process is for the importer.

The quality control of honey has two principle purposes, namely:

- (i) to verify its genuineness, i.e. to reveal possible frauds such as artificial honeys, adulteration, etc; and
- (ii) to determine its quality in respect to the needs of the processor and the market.

The composition limits of the natural product are defined internationally by the Codex Alimentarius Commission (Codex Alimentarius, 1989 and 1994), which also mentions the officially approved analytical methods (See Appendix E – “Codex Regulations on Honey.”)

According to Prinsloo (2003), on arrival of the product at the port of entry, Port Health inspectors do risk assessments on the products and if deemed necessary, they might order the consignment into safe-keeping until all tests are done. After clearance is received a consent or authorization for removal is issued. This is done in terms of Sanitary and PhytoSanitary (SPS) regulations. The SPS permit is only valid for 14 days, i.e. 14 days from certification by the exporting country until the consignment leaves the country borders. Where there are time delays as a result of the transportations method any difficulties are clarified by the Bill of Lading or Bill of Entry. This bill must accompany the original SPS certificate, as well as the import permit. Every consignment must have an original certificate, but the permit can be a copy. There are clear rules in place for the controlling and executions of permit conditions by the border control authorities in accordance with the terms of the International Plant Protection Convention (IPPC). If there are any irregularities around the SPS permit and SPS certificate, the inspectors will investigate the product and might either send it back or destroy the whole consignment at the cost of the importer.

In South Africa the NDA also administer the Agricultural Product Standards Act 1990 (Act No. 119 of 1990) that encompasses, amongst others, regulations relating to the grading, packing and marking of honey and mixtures of bee products intended for sale in South Africa (See Appendix D). According to Erasmus (2003), once the honey is pre-packed for direct sales it must adhere to the regulations of the Product Standards Act. The Directorate Plant Health and Quality (DPHQ) will only investigate complaints if received.

4. Pricing and Logistics Analysis

This section shows how the DDP price of honey delivered to Johannesburg from Manica (CP is Chimoio) and Maputo (CP is Maputo) Provinces, respectively, was derived.

The first step was to establish an acceptable price delivered to the respective consolidation points (i.e. an EXW Chimoio and Maputo prices). As mentioned in Section 2.3 the EMTF suggested that MZM35 000 (USD1.45)/kg in Chimoio and MZM45 000 (USD1.87)/kg in Maputo should be used.

The second step was to calculate the FOB/FCA costs. The FOB/FCA costs for Maputo and Manica are USD71.48 and USD84.33 per MT, respectively (see Table 4 and Tables F.1 and F.2 in Appendix F). If these costs are added to the EXW price at the CP's then the estimated FOB/FCA Mozambique prices are USD1942.58 and USD1551.14 per MT for Maputo and Manica, respectively. To get the estimated DDP price in Johannesburg the delivery cost per ton must be added. This is USD194.25⁵ and USD251.50 per MT for Maputo and Manica, respectively (See Table 4). Thus, the estimated DDP price Johannesburg is USD2136.83 and USD1803.64 per MT for Maputo and Manica, respectively (See Table 4). Of the total price of the product delivered to Johannesburg the three main cost elements are the product value, the radiation and transport and customs formalities. The most important factor is the product value, which is 87.6 and 80.6 per cent, respectively from Maputo and Manica, while radiation represent 8.7 and 10 per cent respectively, and transport 4 and 7.5 per cent, respectively.

As for the DDP market demand price in Johannesburg drought and some bee diseases in South Africa caused the retail price for honey to increase to approximately ZAR48 per kilogram, while during June to September 2003 it ranged between ZAR30 and ZAR44 kg per kg. The calculation is based on the latest figures as it is assumed that the factors affecting the price will continue do so for a longer time period.

It is clear from Table 4 by comparing the estimated DDP price in Johannesburg with the DDP market demand price in Johannesburg that honey from Maputo and Manica would be able to compete when delivered to Johannesburg. This issue is further explored in the Table 5.

Table 4: Estimated Delivered Price for Honey to Johannesburg (Per Metric Ton)

Province	Consolidation point	FOB/FCA Costs Mozambique	Estimated Price FOB/FCA Mozambique USD/MT	Delivery costs per TON (If shipped in FCL) USD/MT	Estimated DDP price Johannesburg USD/MT	DDP market demand price in Johannesburg* USD/MT
MAPUTO	MAPUTO	71.48	1942.58	194.25	2136.83	2800
MANICA	CHIMOIO	84.33	1551.14	251.50	1802.64	2800

Note - Delivery estimates include all consolidation, transport, documentation and customs formalities.

* Calculated back from the estimated retail price

⁵ Take note of comments on these costs in the "Main Report" in section 2.3.2.

Table 5 provides the price competitive indicators in Mozambique, as well as a sensitivity analysis⁶. The competitive margin depends on the price of the product in Mozambique, as well as on the situation in the South African market. Hence, it was decided to include a sensitivity analysis, i.e. adjusting the South African price up and down with intervals of 10 per cent. Moreover, if the price in South Africa drops by 20 per cent honey from Maputo and Manica will still be competitive, although in the case of the latter it will be marginal.

Table 5 Price Competitiveness of Honey Exports to South Africa

Province	Actual price CP (moz)	Actual price to compete in SA (calculated back to CP Moz)	Price competitive	If the price in South Africa fluctuates up or down.			
	Metical	Metical		%			
				-20%	-10%	+10%	+20%
MANICA	35 000	58 268	YES	47 509	53 447	65 325	71 263
MAPUTO	45 000	60 471	YES	49 272	55 431	67 749	73 908

Besides the prices, the exports of honey must also comply with the different standards and regulations mentioned in Section 3.4. Finally, to be successful, the product must meet additional requirements set by the importer such as quality and packaging. Some of the different types of requirements that importers sets were described in section 3.3.

⁶ Electronic versions (in MS Excell format) of the information shown in Appendix E can be used to calculate the price competitiveness of the product using different prices at the consolidation point, as well as with different prices in the South African market.

5. SWOT analysis

<p>Strengths</p> <ul style="list-style-type: none"> ● There are a large number of quality honey producers. ● Many producers have already organized themselves into associations. ● Producers already understand the honey market. It would probably not take too much effort to evolve them into organised exporters. ● Agricultural Research Council, South Africa, is more than willing to get involved in the training of small-scale beekeepers outside South Africa. (Pending permission from the SA Ministry of Agriculture.) ● Some export experience exists, although at a marginal level (hence the reason for also listing it under weaknesses). ● A sample tested in Pretoria in August, found Mozambican honey to be of acceptable quality. ● Proximity of the supply to South Africa. 	<p>Weaknesses</p> <ul style="list-style-type: none"> ● Traditional production methods, which makes quality control and management of the production process difficult. ● Limited level of knowledge on Mozambican side in terms of export procedures. ● No current export distribution channel to South Africa. ● Time factor in replying to import/export enquiries. ● Production centred around traditional honey with poor production techniques and yields. This exacerbates the health control problems. ● Local (SA) honey does not need to be irradiated, whereas imported honey needs to be irradiated. Buyers prefer non-irradiated honey.
<p>Opportunities</p> <ul style="list-style-type: none"> ● There is significant demand for imported honey in South Africa. (±500MT per annum) ● Potential buyers have indicated their willingness to explore imports from Mozambique. ● Short distance to market outlets compared with major competitors. ● Mozambique is a member of SADC hence duty free imports to South Africa ● Good price for selling to South Africa. 	<p>Threats</p> <ul style="list-style-type: none"> ● Bureaucratic delays at expediting export import formalities associated with SPS compliance, pest risk assessment, issuing import permits, irradiation, documentation, etc. ● Imports, especially from China ● Amateur approach to exporting. (An export of 5 tons was made to England but, as all the quality requirements were not followed, the shipment was destroyed and no payments received.)

6. Conclusions

There definitely appears to be export potential for honey to South Africa. This is due to (i) the existence of 'Honey Houses' and Beekeeping Associations/Co-operatives that could play a vitally important role in assisting with the production of honey and in the marketing of honey within Mozambique, as well as for exports, (ii) it appears that there are exportable surpluses, (iii) from a sample that was tested it appears that the honey is of a good quality, (iii) there are willing buyers in South Africa given that South Africa experience shortages annually, (iv) the relatively short distances to move product to consumer markets and (v) producers in Mozambique, and specifically in the Maputo and Manica Provinces, are price competitive even with relatively large price variations.

Issues that may restrain exports include, amongst others, (i) low yields, (ii) lack of export experience, (iii) the ability to have continuous supply, (iv) the responsiveness of potential exporters to demand, (v) the ability to adhere to quality standards and SPS regulations (radiation can be a serious problem due to cost and consumer preferences) and (vi) bureaucratic delays and incompetence as far as trade procedures and formalities are concerned.

Noteworthy from a capacity/training and improvement of yields point of view is that the **Agricultural Research Council (ARC)** currently administers 40 development projects in South Africa related to beekeeping (Lundall-Magnuson, 2003). It is known as the "Beekeeping for Poverty Relief programme and training is rendered to small-scale beekeepers with between 150 and 200 hives in total. The programme involves training in respect of production methods, whilst farmers starting with beekeeping are assisted to procure hives and tools necessary for beekeeping. The traditional production methods are not necessarily less efficient, i.e. training can go a long way to ensure the optimal and efficient use of beehives of a traditional nature. If more modern equipment is to be used it leads to increased costs and greater demand on skills for the building and maintenance of equipment. Training can have more successful consequences than just changing the equipment (Lundall-Magnuson, 2003). They also state that the ARC might be willing to get involved in the training of small-scale beekeepers outside South Africa. Cognisance must, however, be taken that approval for technological knowledge transfer is required from the South African Ministry of Agriculture in terms of the Agriculture Research Act. Thus, the respective Ministries of Agriculture must facilitate involvement of the ARC in Mozambique.

Other courses in beekeeping are also presented in South Africa. For example, Moody (2003) indicated that he is in the process of registering a course in beekeeping that he normally presents at the Port Elizabeth Technicon. He is also working in close cooperation with the ARC.

Van Zyl (2003) indicated that he will be able to assist in the development of equipment and methods that are more labour intensive and not capital intensive. This is not only for the effective retrieving of the honey from the comb but also from the beeswax. He also indicated that he could assist in the development of a market for organically produced honey.

Finally, if the '*sector familiar*' is to play a role in exports, they must organise themselves and appoint representatives or establish associations that are mandated to negotiate with South African buyers. The fewer, (i.e. the more representative they are) the better it would be.

Once the issue of representative bodies has been addressed, then these representatives, with a mandate from the Mozambique Government, (i.e. MADER, Agriculture) can pursue assistance from their counterparts in South Africa. With a view to exploiting the import market in South Africa, and in the spirit of NEPAD/SADC, assistance can be requested from Agricultural Research Council, South Africa, who may need to be persuaded to get involved in assisting Mozambique to overcome problems relating to the export market.

7. Recommended future action

Honey

Problem/Challenge identified	Action	Projected outcome	Agencies responsible
<p>Production related problems (Traditional Methods)</p>	<p>Mozambique honey is of a acceptable quality, even the traditional honey. However there is an inconsistency of quality. Get the major honey producers, Chimanimani Honey Project, Honey houses, ADEM and Fruitimel to combine their efforts in the foreign market.</p> <p>Consult with South African honey traders to see what packaging/presentation is required by the importers.</p>	<p>Suitably trained and informed beekeepers.</p> <p>Better use of technology and thus better yields per hive.</p> <p>Consistency in supply and quality</p> <p>Suitable export packaging</p>	<p>MADER (Beekeeping National Program MADER-DNFFB)</p> <p>ADEM</p> <p>PoDE (Technical Learning programme – TLC)</p> <p>INNOQ</p> <p>Beekeeping Association</p>
<p>Limited Export Knowledge</p>	<p>Training on export requirements and procedures.</p> <p>Impress on producers the necessity of taking enquiries seriously and replying timeously.</p>	<p>Ability to manage sales better.</p> <p>Efficiency and management.</p> <p>Improved financial feasibility.</p>	<p>CPI</p> <p>MADER</p> <p>PoDE (Technical Learning programme – TLC)</p> <p>Government Incentive Programs</p>

8. Contacts Interviewed

For the purposes of this report the following companies and individuals were interviewed in Mozambique and in South Africa.

We would like to give credit and thanks to all those who participated in providing information and assistance. The general attitude was helpful and willing to assist Mozambique with this undaunting task.

INTERVIEWS IN SOUTH AFRICA SPECIFICALLY FOR HONEY.

NAME	COMPANY	TEL. NO	COMMENTS
Adam, M	Freshmark, Cape Town, Eastern Cape		Potential Buyer (Agent)
Clark, G	G Clark & Assoc	021 581 2722	General Information & Logistics
Claussen, J	Freshmark, Polekwane, Limpopo		Potential Buyer (Agent)
Dinkelman, W	Blessed by the bee	011 949 1793	Potential Buyer
Du Toit, A	President of the African Beekeepers Assoc.	012 808 1762	Technical Assistance and Training
Ford, B	Woolworths, Cape Town		Potential Buyer
Foster, S	Fleures Honey Products	012 362 6991	Potential Buyer
Holtzhausen, M	Nat Plant Protection Org.(NPPO)	012 319 6100	S.P.S. Certification
Holtzkampf, Charlotte	Johannesburg Fresh Products	011 613 2049	Potential Buyer
Lundall-Magnuson, E	Beekeeping for Poverty Relief		Potential Buyer
Marchand, D	Honeybee Foundation	012 511 4567	Potential Buyer
Moody, J	Honeywood Farms	028 722 1823	Potential Buyer
Muller, A	Freshmark, Cape Town, Eastern Cape		Potential Buyer (Agent)
Naude, L	Freshmark, Centurion, Gauteng		Potential Buyer (Agent)
Oliver, C	Woolworths, Cape Town		Potential Buyer
Palley, S	Freshmark, Durban, Kwazulu-Natal		Potential Buyer (Agent)
Richards, M	Fruit & Veg City	011 613 4590	Potential Buyer
Shel, A	Honey-Bee Farms	012 807 1800	Potential Buyer
Smith, N	Freshmark, Bloemfontein, Free State		Potential Buyer (Agent)
Stock, A	Freshmark, Port Elizabeth, Eastern Cape		Potential Buyer (Agent)
Swennson, J	Sally Williams Natural Honey Nougat		Potential Buyer
Taylor, D	Freshmark, Durban, Kwazulu-Natal		Potential Buyer (Agent)
Van Tibberch, J	Fruit & Veg City	C.T.	Potential Buyer
Van Zyl, B	Subtropico	011 613 8611	Potential Buyer
Waterboer, N	Freshmark, Centurion, Gauteng		Potential Buyer (Agent)
Brown, Patrick	Evenrun Beeswax	033 345 1016	Potential Buyer

(The nature and number of these alliances/partnerships depends on the envisaged product and amount to be exported to South Africa. Some contacts may need Government/Diplomatic support in the interests of regional trade and SADC commitment.)

APPENDIX A

Prohibited and Restricted Goods Index
(South African Customs Act 91 of 1964)

Jacobsons

PROHIBITED AND RESTRICTED GOODS INDEX

- 22 -

IMPORT 04.09

Head- ing	Sub- heading	Designation of Goods	Prohibition or Restriction	Authority	Action Required	Ref- erence
04.09	0409.00	<p>Natural honey Honey imported from overseas and from any state or territory in Africa</p> <p>N.B. "Honey" means any honey and pollen collected by honey bees and also any preparation or product consisting partly of honey or such pollen. The definition of "plant" includes pollen, and pollen, which is conveyed by bees, is an essential part of honey. Honey includes propolis and royal jelly, and it follows therefore that plant pollen and preparations containing royal jelly used in the manufacture of confectionery and health foods is subject to control</p>	<p>(1) Subject to permit issued by Directorate of Plant and Seed Control (2) Prohibited if imported into SWA except from the Republic (3) See par. (N), page iv (4) See par. (Q), page iv (5) See Notes 4.1 to 4.4</p> <p>Prohibited</p>	<p>Agricultural Pests Act 36/1983 Ord. 11/1927</p> <p>The Foodstuffs, Cosmetics and Disinfectants Act 54/1972</p> <p>Agricultural Pests Act 36/1983</p>	<p>Detain for Plant Inspector</p> <p>Detain for Port Health Officer</p> <p>Detain for Plant Inspector</p>	
04.10	0410.00	<p>Edible products of animal origin, not elsewhere specified or included:</p> <p>(A) Requirements of the Central Government of the Republic</p> <p>(B) Requirements of the Provincial Administrations and the Administration of SWA:</p> <p>(i) Transvaal</p> <p>(ii) Orange Free State</p> <p>(iii) Cape Province</p> <p>(iv) Natal</p> <p>(v) South West Africa</p>	<p>(1) All foodstuffs</p> <p>(2) Importation into the Republic (excluding SWA) is subject to a permit from the Director of Veterinary Services, Pretoria, or a person designated by him</p> <p>Importation into Transvaal is subject to a permit issued by the Administrator Importation into Orange Free State is subject to a permit issued by the Administrator Importation into the Cape Province is subject to a permit issued by the Director of Nature Conservation Importation into Natal is subject to a permit issued by the Natal Parks, Game and Fish Preservation Board Importation into SWA is subject to a permit issued by the Administrator and subject to a permit issued by the Director of Agriculture</p>	<p>The Foodstuffs, Cosmetics and Disinfectants Act 54/1972</p> <p>Animal Diseases Act 35/1984 G.N. 1536/1983 G.N. 1075/1984</p> <p>Agricultural Pests Act 1983 (Act 36 of 1983)</p> <p>Ord. 17/1967</p> <p>Ord. 8/1969</p> <p>Ord. 26/1965</p> <p>Ord. 11/1955</p> <p>Ord. 31/67 and 34/50</p>	<p>Detain for Port Health Officer</p> <p>Detain for Plant Inspector</p> <p>Endorse permit</p> <p>Endorse permit</p> <p>Endorse permit</p> <p>Endorse permit</p> <p>Endorse permit</p>	

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APPENDIX B

NOTICE NO 759 OF 2002

DEPARTMENT OF AGRICULTURE

PROCEDURE FOR THE APPLICATION, ADMINISTRATION AND ALLOCATION OF REBATE PERMITS FOR THE IMPORTATION OF NATURAL HONEY

It is hereby made known that rebate permits will be issued to all persons interested in importing natural honey into the Republic of South Africa during the calendar year 2002, under a rebate of the full customs duty on natural honey classifiable under Tariff Heading 04.09 and under the conditions set out in the Schedule.

B.N. Njobe,
DIRECTOR-GENERAL: AGRICULTURE

SCHEDULE

1. Application for rebate permits

- 1.1 Any person interested in importing natural honey must apply therefore on a copy of the application form in the Annexure.
- 1.2 The application form is available electronically on request from elsabevdr@nda.agric.za.
- 1.3 When applications for rebate permits are submitted a copy of the permit issued in terms of the Agricultural Pests Act, (Act No. 36 of 1983) must be included therewith.
- 1.4 An application form will only be accepted if duly completed.
- 1.5 An applicant bears the responsibility to ensure that –
 - (a) the application form reflects the correct information as requested;
 - (b) the application is submitted timeously within the time period contemplated in paragraph 4.1; and
 - (c) the application has been received by the Manager: Trade Administration.

2. Conditions for the issuing of permits

- 2.1 Rebate permits will be issued under the following conditions:
 - (a) Imported natural honey must comply with section (3) of the Agricultural Pests Act, 1983 (Act No. 36 of 1983).
 - (b) Imported natural honey must be repacked in immediate packings of less than 1 000 g.
 - (c) Repacked imported natural honey must comply with the stipulations of the regulations relating to the grading, packing and marking of honey and mixtures of honey intended for sale in the Republic of South Africa as published in Government Notice No. R. 835 of 25 August 2000 in terms of the Agricultural Products Standard Act, 1990 (Act No. 119 of 1990).
 - (d) The importer must be a *bona fide* repacker of natural honey.
- 2.2 Permits will be allocated on the basis of the following categories:
 - (a) 10% to importers who did not import natural honey during the past three years, referred to as new importers;
 - (b) 10% to importers that are Small, Medium and Micro Enterprises, referred to as SMME importers; and
 - (c) 80% to importers who imported natural honey during the past three years, referred to as historical importers.
- 2.2 (a) Permits will be allocated to –
 - (i) new importers on an equal basis;
 - (ii) SMMEs either on an equal basis or as a historical importer, whichever will promote government policy for SMME development; and

(iii) historical importers in proportion to the average of the quantity imported by the applicant during the past three years.

(b) The quantity imported by a historical importer will be calculated in proportion to the quantity imported by the applicant during the past three years on the basis of the list of the bills of entry submitted for the period concerned.

2.3 If no applications were received in the category new and SMME importers the quota may be allocated to historical importers.

3. Addresses for applications

3.1 Applications must –

(a) when forwarded by post, be addressed to:

The Manager: Trade Administration
National Department of Agriculture
Private Bag X791
PRETORIA 0001

(For attention: Mr G J Kamfer, Dirk Uys Building, Room 468)

(b) when delivered by hand, be delivered to:

The Manager: Trade Administration
National Department of Agriculture
Dirk Uys Building, Room 468
30 Hamilton Street
ARCADIA
PRETORIA

(For attention: Mr G J Kamfer)

(c) when transmitted by facsimile, be transmitted to:

Facsimile number: (012) 319 6169

(For attention: Mr G J Kamfer)

Applications transmitted by facsimile must be followed up by forwarding the original application to the address contemplated in paragraph (a) or (b) to reach the Department within 14 days of the facsimile transmission.

3.2 Applications delivered by hand will only be accepted during the Department's official hours of 07:30 to 16:00.

4. Time period for applications

4.1 Applications for rebate permits must be submitted from the date of publication of this notice up to the date four weeks from the date of publication of this notice.

4.2 Permits will be valid from 1 January 2002 to 31 December 2002.

5. General

5.1 Applicants must return all expired permits within 30 days after the date of expiry thereof. Applicants who do not return their expired permits timeously will not be considered for the granting of permits.

5.2 This notice replaces all previous notices regarding procedure for the application, administration and allocation of rebate permits for the importation of natural honey.

Application form

APPENDIX C

IMPORT CONDITIONS FOR PURE HONEY

1. Importer shall arrange with the Manager of Irradiation plant (paragraph 2.5) prior to import of consignment, for immediate irradiation thereof. Written approval for removal from the port of entry must be obtained from the Executive Officer of the Agricultural Pests Act, 1983 (Act No.36 of 1983) before removal to the irradiation plant.
2. Each consignment shall be –
 - 2.1 packed in sealed durable cans/canisters;
 - 2.2 packed in cans/canisters sealed with tight fitting lids;
 - 2.3 packed and transported in such a way that no spillage shall occur;
 - 2.4 packed in cans/canisters not exceeding 610 mm in diameter **and the height thereof to be determined by the Manager of the relevant Irradiation Plant;**
 - 2.5 *consigned by the supplier in the foreign country in the name of the Importer directly to one of the following Irradiation Plants:*
 - 2.5.1 BIOGAM-AEC, PELINDABA, PRETORIA;
 - 2.5.2 GAMMASTER (PTY) LTD, 1 WATERPAS ROAD, ISANDO;
 - 2.5.3 GAMWAVE (PTY) LTD, 19 THE AVENUE EAST, PROSPECTON, DURBAN; OR
 - 2.5.4 HEPRO CAPE (PTY) LTD, 6 FERRULE AVENUE, MONTAGUE GARDENS, CAPE TOWN; for irradiation at a **minimum absorbed dosage of 10 kGy** and a maximum absorbed dosage of 20 kGy; and
 - 2.6 inspected on arrival by the Executive Officer of the Agricultural Pests Act, 1983 (Act No.36 of 1983) at the port of entry. Should no leakage(s) occur the importer shall be permitted by means of written consent from the Executive Officer, to transport the consignment to the relevant Irradiation Plant.
3. On arrival at the Irradiation Plant, the importer or his agent shall inform the Executive Officer of date and time of opening of containers with cans and canisters. Containers shall only be opened under supervision of the Executive Officer.
4. Honey shall only be irradiated in the original sealed cans/canisters in which the honey was imported.
5. Removal of containers with cans/canisters from the above premises shall be subject to –
 - written confirmation by the relevant Plant Manager that the required irradiation treatment has been applied (**minimum absorbed dosage of 10 kGy**) for each batch, cage or carrier [drum/packing unit] treated; and
 - written consent from the Executive Officer.
6. Irradiation treatment shall be done at the importer's risk. The Executive Officer will by no means be held liable for any damage or loss resulting from such prescribed treatment(s).
7. Irradiation of honey is subject to the approval of the Department of National Health and Population Development of the RSA.

8. Leaking containers of the first consignment shall be sealed and decontaminated under supervision of the Executive Officer and the total consignment shall be returned to the country of origin.
9. Should the second consignment contain leaking containers, similar procedures shall be followed as described in 8, **AND the permit shall be withdrawn.**
10. The importer shall be responsible for all expenses involved.

***THE FOLLOWING UNDERTAKING TO BE COMPLETED BY IMPORTER OR HIS AUTHORISED
AGENT***

I, the undersigned, _____

I D No: _____

Am fully aware of the above-mentioned conditions and understand that should I contravene or fail to comply with any of the above conditions I shall be guilty of an offence and be liable for prosecution under the Agricultural Pests Act, 1983(Act No. 36 of 1983)

SIGNED: _____ DATE: _____

PERMIT NO: _____

DEPARTMENT OF AGRICULTURE

No. R-835

25 August, 2000

AGRICULTURAL PRODUCT STANDARDS ACT, 1990

REGULATIONS RELATING TO THE GRADING, PACKING, AND
MAKING OF HONEY AND MIXTURES OF BEE PRODUCTS
INTENDED FOR SALE IN THE REPUBLIC OF SOUTH AFRICA

The Minister of Agriculture has in terms of section 15 of the Agricultural Product Standards Act, 1990 (Act No. 119 of 1990) --

- (a) made the regulations in the Schedule; and
- (b) *read together with section 3(2) of the said Act, repealed the regulations published by Proclamation No. R. 69 of 16 March 1973 and Government Notice No. R. 2336 of 19 October 1979.*

Definitions

1. In these regulations any word or expression to which a meaning has been assigned in the Act shall have that meaning and --

"**additive**" means a food additive as defined in the regulations made under the Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No. 54 of 1972);

"**adulterants**" means any non bee product added to (natural) bee products;

"**bee products**" means products produced or harvested by honey bees or stingless bees, such as honey, beeswax, propolis and royal jelly;

"**beeswax**" means the wax produced by honeybees or stingless bees;

"**beeswax foundation**" means a sheet of pure beeswax embossed on both sides with the bases of the cells of the comb;

"**brood**" means the immature stadia of bees, i.e. eggs, larvae or pupae;

"**bulk honey**" means honey that is sold in the trade in containers of 25 kg and more;

"**business address**" means (a) an address in the Republic and includes the street or road number (if a number has been allotted), the name of the street or road and the name of the town, village or suburb and, in the case of a farm, the name of the farm and of the magisterial district in which it is situated and (b) in the case of imported honey and mixtures of bee products means the address of the producer or supplier or importer or packer or seller or distributor, provided that in the case where the supplier or importer or packer or seller or distributor is based in the Republic, the address shall be the physical address as described in (a);

"**cell**" means one single hexagonal compartment on a comb;

"**chunk honey**" means chunks of cut comb honey suspended in a medium of extracted honey;

"**clarity**" means the measure of the absence in extracted honey of all visible and entrapped air bubbles, pollen or other particulate;

"**comb**" means the cellular wax structure in which bees store honey and/or pollen;

"**comb honey**" means honey still contained in the freshly built, broodless, sealed cells of the comb;

"**consignment**" means a quantity of honey or mixtures of bee products delivered at a given time under cover of the same document;

"**creamed honey**" means crystallised extracted honey purposely processed to be of a uniformly creamy consistency and of a smooth spreadable texture;

"**crystallised honey**" means extracted honey which has crystallised to a greater or lesser extent;

"**cut comb honey**" means comb honey which has been cut into appropriate sizes and packed in suitable containers;

"**date of packing**" means the date on which the honey or mixtures of bee products were packed into the containers thereof;

"**Department**" means the National Department of Agriculture;

"**Executive Officer**" means the officer designated under section 2(1) of the Act;

"**extracted honey**" means honey after separation from the comb;

"**filtered honey**" means honey that has been passed through a filter under pressure;

"**floral honey**" ("blossom honey") means any laevorotatory honey derived essentially from the nectar of flowers;

"**HMF content**" means the quantity (mg/kg) of hydroxymethylfurfural present in honey;

"**honey**" means the sweet foodstuff derived from the nectar of flowers, sugary excretions of insects, plant juices or sugary secretions of living plant parts other than flowers, after it has been gathered, partially converted and stored in the comb by honeybees or stingless bees;

"**honey bees**" means insects of genus Apis;

"**honeydew honey**" means any dextrorotatory honey derived essentially from the sugary secretions of plant parts other than flowers or from the sugary excretions of insects on living plant parts after it has been gathered, partially converted and stored in the comb by honeybees or stingless bees;

"**honey substitute**" means any foodstuff consisting of a food substance or a mixture of substances that have been made to resemble honey;

"**impurities**" means all substances which will detract from the appearance, acceptability or edibility, or the flavour or aroma appeal of the product;

"**inspector**" means the Executive Officer or an officer under his control;

"**irradiation**" means deliberate exposure to ionising radiation and "irradiated" has a corresponding meaning;

"**liquid honey**" means honey in a liquid state;

"**lot**" means a definite quantity of honey or mixtures of bee products packed essentially under the same conditions and identifiable by an unique number or the date of packing;

"**packer**" means any person who packs bee products;

"**pollen**" means the male fertilising germ seed of flora which appears in the anthers of blooms and is sometimes collected by bees and stored as a food;

"**ppm**" means parts per million;

"**producer**" means a person who keeps bees to produce honey and/or other bee products;

"**propolis**" means the resinous material usually of plant origin used by bees to insulate, waterproof and sanitise the hive or nest;

"**raw honey**" means unfiltered, unheated honey, i.e. honey which would conform to the specifications and requirements of Choice Grade liquid honey if so processed;

"**ripe honey**" means honey containing the minimum moisture content and the maximum active enzymes, sealed in the cells;

"**royal jelly**" means the secretions from the hypopharyngeal gland of the worker bee;

"**sieve size**" means the following mesh size shall be equivalent to the corresponding standard metric measurement, 35 mesh = 420 micron or 0.42 mm;

"**stingless bees**" means insects of the order Melliponinae;

"**strained honey**" means honey that has been strained through a sieve by its own weight, i.e. gravity;

"**sugar cane honey**" means honey produced from sugar cane;

"**the Act**" means the Agricultural Product Standards Act, 1990 (Act No. 119 of 1990); and

"**unheated honey**" means honey of which the temperature has not been raised above 38 degrees Celsius by the producer or the packer.

Scope of regulations

2. (1) These regulations shall apply to the grading, packing and marking of honey and mixtures of bee products intended for sale in the Republic of South Africa to which and under circumstances in which a prohibition in terms of section 3 of the Act regarding the sale of honey and mixtures of bee products apply; and

(2) all honey substitutes are specifically excluded from these regulations with the exception for the specifications of regulation 9.

Requirements for sale

3. (1) Honey and mixtures of bee products may in terms of section 3 of the Act be presented for sale if --

- (a) the honey and mixtures of bee products comply with the grade requirements referred to in regulation 5;
- (b) the honey and mixtures of bee products comply with the standards for the grades referred to in regulation 6;
- (c) the containers in which honey and mixtures of bee products are packed comply with the requirements for containers referred to in regulation 7;
- (d) the containers concerned are marked in the manner prescribed in regulation 8;
- (e) the containers concerned comply with the marking restrictions referred to in regulation 9;

- (f) the honey and mixtures of bee products are free from impurities, additives and adulterants; and
- (g) subject to the provisions of paragraphs (a), (b), (c), (d), (e) and (f), the honey and mixtures of bee products comply with the appropriate standards as set out in Tables 1-4 in Part II.

(2) The Executive Officer may grant written exemption, entirely or partially, to any person on such conditions as he deems necessary, from the provisions of subregulation (1).

Offences and penalties

4. Any person who contravenes or fails to comply with the provisions of these regulations shall be guilty of an offence and upon conviction be liable to a fine or imprisonment in accordance with section 11 of the Act.

PART I GENERAL STANDARDS AND REQUIREMENTS FOR HONEY AND MIXTURES OF BEE PRODUCTS

Grades of honey and mixtures of bee products

- 5. (1) There shall be two grades for liquid honey, creamed honey and comb honey, namely Choice Grade and Industrial Grade.
- (2) There shall be one grade for chunk honey and mixtures of bee products, namely Choice Grade.
- (3) Subject to the definition for raw honey there shall be no grading of raw honey.
- (4) The crystallisation of liquid honey is a natural process and shall not result in the honey being down-graded.
- (5) When any quality factor of the standards or specific standards for creamed or crystallised honey is in dispute, a sample shall be liquefied as described in regulation 10(3) and thereafter graded.

Standards for grades of honey

- 6. (1) Honey shall --
 - (a) be well ripened in the hive in order to contain the correct moisture content and enzyme activity; and
 - (b) be free from particles foreign to its composition (such as mould, insects or insect debris, sand, etc.).
- (2) Honey shall not --
 - (a) have any foreign tastes or odours;
 - (b) have begun to ferment or effervesce; and
 - (c) have been treated in such a way that its natural enzymes are destroyed or made inactive.
- (3) Any of the following relevant tests may be selected to determine the composition, quality and ripeness of honey and, if the honey does not comply with any one of these selected tests, then it shall be deemed as not complying with the standards for grades of honey:
 - (a) Maximum HMF content - shall not exceed 40 mg/kg.
 - (b) Maximum density - shall not be less than 1.40875 g at 20 degrees Celsius.
 - (c) Maximum ash content - shall not exceed 0.6 per cent.

- (d) Maximum sucrose content - shall not exceed five per cent.
- (e) Maximum reducing sugar content - shall not be less than 65 per cent in floral honey or 60 per cent in honeydew honey.
- (f) Fructose : glucose ratio - shall not be less than 1.0:1.
- (g) Diastase activity - shall be present and shall show a DN value not lower than DN 4 on the Gothe-Scale.
- (h) Lund-test - a precipitate of not less than 0.6 cm³ shall be obtained within 24 hours.
- (i) Direct and immediate specific rotation - of an aqueous solution containing 26 g of floral honey in a total volume of 100 ml, shall be not less laevorotatory than minus 10 at 20 degrees Celsius.
- (j) Maximum acid content shall not be higher than 40 milli-equivalents acid per kg.
- (k) Amylo- and erythro-dextrine - test for their presence shall be negative.
- (l) Prolin - at least 200 mg per kg shall be present.
- (m) Amylase content - shall not be below 8 ppm.
- (n) Invertase content - shall not be below 4 ppm.
- (o) Moisture content - shall not exceed 20 per cent.
- (p) Water insoluble solids content in the liquid honey portion - shall not be more than 0.1 per cent
- (q) The difference between the stable isotope ratio delta 13C (‰) of the honey and the stable isotope ratio of its protein content shall not be less than 0.0.

Requirements for containers

7. A container containing honey or mixtures of bee products shall --
- (a) be made from material that --
 - (i) is suitable for this purpose;
 - (ii) will protect the contents thereof from contamination; and
 - (iii) will not contaminate the contents thereof in any way;
 - (b) *be so strong that it will not be damaged or deformed during normal storage, handling and transport practices;*
 - (c) be intact; and
 - (d) *be closed properly in a manner permitted by the nature thereof.*

Marking requirements

8. (1) Subject to the provisions of these regulations, the required marking requirements shall appear in letters not less than 1 mm in height on any container containing honey or mixtures of bee products.

- (2) Any container containing honey or mixtures of bee products, shall be clearly and legibly marked with the following particulars:
- (a) The name of the product in letters at least 4 mm high: Provided that a true reflection of the kind of honey contained therein, such as creamed or chunk, the floral or plant source such as sunflower, buckwheat, honeydew, or any other similar description such as the geographical or topographical origin in letters of at least 4 mm high, may be used additionally.
 - (b) The name and business address of the producer or packer or seller of such a product.
 - (c) The country of origin of the contents.
 - (d) The grade of the contents in letters at least 2 mm high.
 - (e) When containing raw honey, with the words "raw" or "unprocessed" in letters at least 2 mm high.
 - (f) When containing sugar cane honey in any proportion, as containing sugar cane honey.
 - (g) When containing mixtures of bee products, with the proportions of bee products contained therein.
 - (h) The date of packing.
 - (i) Lot identification in such a way that the producer, packer or seller whose name and address appears on the container, could identify or assist in identifying the premises where a product is finally combined as well as the lot: Provided that the date of packing can be used for lot identification, where applicable.
 - (j) The word "irradiated" or "radurised" in letters at least 3 mm high in the vicinity of the name of the product, when the contents consist totally or partially of honey that has been subjected to irradiation: Provided that the indication of the radura symbol is optional.
 - (k) The net mass in accordance with the Trade Metrology Act, 1973 (Act No. 77 of 1973) as applied by the SABS.
- (3) Any container containing honey or mixtures of bee products which is sold in bulk other than retail, shall be exempted from the marking requirements if the container is accompanied by relevant trade documents reflecting all particulars required by these regulations, with the following exceptions:
- (a) The name and business address of the producer or packer or seller of such honey shall appear on the container.
 - (b) The grade of the contents may be omitted from the trade documents if such honey has not been graded.
 - (c) Lot identification of a container in such a way that the producer, packer or seller whose name and address appears on the container, could identify or assist in identifying the premises where a product is finally combined as well as the lot.
 - (d)
 - (i) The word "irradiated" or "radurised"; and
 - (ii) the country of origin of the contents shall appear in letters at least 3 mm high on containers, the contents of which consist totally or partially of honey that has been subjected to irradiation: Provided that the indication of the radura symbol is optional.
- (4) Labels on containers containing honey or mixtures of bee products shall be clean, neat and shall be securely pasted thereon and shall not be pasted over other labels, unless as an additional label referring to the same product in the same container.

Restricted particulars on containers

9. (1) No wording, illustration or other means of expression which constitutes a misrepresentation or which, directly or by implication, may create a misleading impression of the contents, shall appear on any container containing honey or mixtures of bee products.

(2) (a) The word "honey" or any representation thereof may not appear anywhere on any honey substitute, its label or packaging; and

(b) should a honey substitute contain any honey, then the word "honey" shall only appear within the list of ingredients of such honey substitute.

(3) Except for honey and mixtures of bee products, no other product may have its label, packaging, trade name, trade mark or pictorial illustrations, so designed as to imply that honey is a main ingredient.

(4) Except for the trade name, radura symbol, pictorial illustrations, logo or registered mark, marking requirements prescribed in regulation 8, additional marking requirements allowed by regulation 11, information in respect of crystallisation and the liquefaction of crystallised honey and chemical composition or nutritive value, no other name, mark, description, advertisement, or claim as to the qualitative properties or otherwise of honey, shall appear on the container of honey or mixtures of bee products, on its lid, cap or stopper, or on the label or any leaflet, however attached to the container, unless directly relevant to the marketing or production of the product, and scientifically and factually verifiable.

Inspection and handling of samples

10. (1) An inspector may in any consignment of honey or mixtures of bee products open as many containers and inspect the contents thereof and remove samples of such contents for the purpose of further inspection or analysis, as he may deem necessary, for which he must issue a receipt.

(2) An inspector shall satisfy himself that the samples so extracted are representative of the product in the consignment concerned.

(3) Samples of honey and the honey in mixtures of bee products shall be prepared as follows for analysis:

(a) In the case of non-heat sensitive tests --

(i) if free from crystallisation, mix thoroughly by stirring;

(ii) if crystallised, place closed container in a water-bath without submerging and heat for 30 minutes at 60 degrees Celsius, then if necessary heat at 65 degrees Celsius until liquefied. Occasional stirring during heating is essential. Mix thoroughly and cool rapidly to room temperature as soon as sample liquefies;

(iii) if still in comb, separate from comb by carefully crushing the comb and straining the honey through sieve of 35 mesh. If portions of comb or beeswax pass through sieve, heat sample to 40 degrees Celsius in a water bath and strain through cheese cloth in a hot water funnel; and

(iv) if honey is granulated in the comb, heat at 65 degrees Celsius until beeswax is liquefied, cool and remove beeswax, then stir.

(b) In the case of heat sensitive tests --

(i) samples are prepared without heating;

(ii) if free from crystallisation, mix thoroughly by stirring; and

- (iii) if still in comb, separate from the comb by carefully crushing the comb and straining the honey through a sieve of 35 mesh.

Additional requirements

11. Subject to the provisions of these regulations, honey and mixtures of bee products, and any other foodstuff containing honey and/or bee products shall --

(a) *comply with the applicable requirements prescribed by the Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act No. 54 of 1972), as applied by the Department of Health; and*

(b) *in the case of imported products, comply with the conditions as stipulated by the prescribed permit issued in terms of the Agricultural Pests Act, 1983 (Act No. 36 of 1983), as applied by the Department.*

**PART II
SPECIFIC STANDARDS FOR HONEY AND MIXTURES OF BEE PRODUCTS**

Table 1: Liquid Honey and Creamed Honey

Quality Factor	Choice Grade	Industrial Grade
(a) Colour and clarity	Uniform in colour and clear or, for creamed honey, uniform and creamy	*
(b) Taste	A taste typical of that of honey derived from the predominant source or sources. It shall be well ripened and free from any foreign taint or objectionable aroma or flavour, such as is caused by overheating, smoke or other unnatural taints	As for Choice Grade
(c) Visible insoluble particles	Free from visible particles which at 55 degrees Celsius will not pass through a sieve of 35 mesh	*

* Not to Choice Grade specifications in one or more respects.

Table 2: Comb Honey

Quality Factor	Choice Grade	Industrial Grade
(a) Appearance	Shall be undamaged and uniform	*
(b) Beeswax foundation (if used)	The comb shall be drawn out on light mass beeswax foundation	*
(c) Cells containing pollen	Not more than 25 per cent	*
(d) Uncapped cells	At least 85 per cent of the cells must be capped	*

Quality Factor	Choice Grade	Industrial Grade
(e) Cells containing brood	None	None
(f) Cells in which brood has been reared/brown or black cells	None	*
(g) Taste	A taste typical of that of honey derived from the predominant source or sources. It shall be well ripened and free from any foreign taint or objectionable aroma or flavour, such as is caused by over-heating, smoke or other unnatural taints	As for Choice Grade

* Not to Choice Grade specifications in one or more respects.

Table 3: Chunk Honey

Quality Factor	Choice Grade
(a) Appearance of comb	The chunks of comb honey shall be suspended in liquid honey and at least 85 per cent of the cells of the comb must be capped
(b) Chunk of comb	Choice Grade comb honey shall be used
(c) Added liquid honey to produce the nett mass	Choice Grade liquid honey shall be used to completely immerse the piece of comb
(d) Taste	A taste typical of that of honey derived from the predominant source or sources. It shall be well ripened and free from any foreign taint or objectionable aroma or flavour, such as is caused by over-heating, smoke or other unnatural taints

Table 4: Mixtures of Bee Products

Quality Factor	Choice Grade
(a) Added honey	Choice Grade honey shall be used

CODEX REGULATIONS ON HONEY APPENDIX E

**Will be made available in electronic format
(Adobe file)**

Appendix F

Table F.1: Cost calculations for honey exports from Maputo to DDP Johannesburg, South Africa (December 2003)

Forward - Moz to SA.	Consolidation Point.		MAPUTO		Backwards - SA to MOZ	
Start	@	45,000.00	MZM/kg	Target	60,470.78	MZM/kg
Price delivered to the C.P.	MZM	45,000,000.00	Start	End	60,470,778.88	MZM per Metric Tonne
Price delivered to the C.P. (USD)	USD	1,871.10			2,514.38	(@ 24 050)
Delivery of empty container to the C.P.	USD	0.00			0.00	(From Container Depot to C.P.)
Price EXW Maputo (C.P.)	USD	1,871.10			2,514.38	EXW
Full container to point of exit - Ressano Garcia	USD	2.50			2.50	
Terminal Handling Charges	USD	0.00			0.00	(Only at a Sea Port)
Cargo Handling (Manuseamento)	USD	9.00			9.00	(Clearing Agents, Handlers etc)
Container Movement Tax	USD	1.50			1.50	(Charge from Mozambique Customs)
Movement Guide	USD	0.20			0.20	(Charge from Mozambique Customs)
Customs Service Tax @ 3% of Invoice(FOB)	USD	58.28			78.17	(Charge from Mozambique Customs)
Price FOB/FCA Ressano Garcia	USD	1,942.58			2,605.75	(Customs Exit at Ressano Garcia)
	USD	0.00			0.00	
	USD	1,942.58			2,605.75	
Clearing Formalities	USD	1.50			1.50	South African Port Charges
Customs Duties in South Africa	USD	0.00			0.00	No duties for SADC
Costs of Irradiation	USD	188.00			188.00	
Carriage to Johannesburg	USD	4.75			4.75	(Railage costs)
Price DDP Johannesburg	USD	2,136.83			2,800.00	(This is the final price to the SA wholesaler.)
S.A. Wholesaler's Margin @ 50%	USD	1,068.41	1,400.00			
S.A. Price to Retailer		3,205.24	4,200.00			
S.A. Retailer's Margin @ 75% ave.		2,403.93	3,150.00	(75% Average for Chain Stores)		
DELIVERED RETAIL PRICE IN S.A.	USD	5,609.18	End	Start	7,350.00	PER Metric Tonne
Comparative Retail Price in S.A.	USD	7,350.00	Per Metric Tonne (ZAR48/kg)			

Note: Costing is per Metric Tonne but based on Full Container Loads of 20 Metric Tonnes (or 26 Cubic metres)

Table F.2: Cost calculations for honey exports from Manica (Chimoio) to DDP Johannesburg, South Africa (December 2003)

Forward - Moz to SA.	Consolidation Point.		Chimoio		MANICA	Backwards - SA to MOZ	
	Start	@	35,000.00	MZM/kg	Target	58,543.59	MZM/kg
Price delivered to the C.P.	MZM		35,000,000.00	Start	End	58,543,592.25	MZM per Metric Tonne
Price delivered to the C.P. (USD)	USD		1,455.30			2,434.25	(@ 24 050)
Delivery of empty container to the C.P.	USD		11.50			11.50	(From Container Depot to C.P.)
Price EXW Chimoio (C.P.)	USD		1,466.80			2,434.25	EXW
Full container to point of exit - Beira	USD		22.85			22.85	
Terminal Handling Charges	USD		3.25			3.25	(Only at a Sea Port)
Cargo Handling (Manuseamento)	USD		9.00			9.00	(Clearing Agents, Handlers etc)
Container Movement Tax	USD		2.50			2.50	(Charge from Mozambique Customs)
Movement Guide	USD		0.20			0.20	(Charge from Mozambique Customs)
Customs Service Tax @ 3% of Invoice(FOB)	USD		46.53			76.45	(Charge from Mozambique Customs)
Price FOB/FCA Beira	USD		1,551.14			2,548.50	(At the Exit Port)
Seafreight to Durban	USD		21.25			21.25	
Price CIF/CIP Durban	USD		1,572.39			2,569.75	(Unloaded on the quay)
Clearing Formalities	USD		18.50			18.50	South African Port Charges
Customs Duties in South Africa	USD		0.00			0.00	No duties for SADC
Costs of Irradiation	USD		188.00			188.00	
Carriage to Johannesburg	USD		23.75			23.75	(Railage costs)
Price DDP Johannesburg	USD		1,802.64			2,800.00	(This is the final price to the SA wholesaler.)
S.A. Wholesaler's Margin @ 50%	USD		901.32			1,400.00	
S.A. Price to Retailer			2,703.95			4,200.00	
S.A. Retailer's Margin @ 75% ave.			2,027.96	3,150.00	(75% Average for Chain Stores)		
DELIVERED RETAIL PRICE IN S.A.	USD		4,731.92	End	Start	7,350.00	PER Metric Tonne
Comparative Retail Price in S.A.	USD		7,350.00	Per Metric Tonne (ZAR48/kg)			

Note: Costing is per Metric Tonne but based on Full Container Loads of 20 Metric Tonnes (or 26 Cubic metres)

REVISED CODEX STANDARD FOR HONEY
CODEX STAN 12-1981, Rev.1 (1987), Rev.2 (2001)¹

The Annex to this Standard is intended for voluntary application by commercial partners and not for application by Governments.

1. SCOPE

- 1.1 Part One of this Standard applies to all honeys produced by honey bees and covers all styles of honey presentations which are processed and ultimately intended for direct consumption. Part Two covers honey for industrial uses or as an ingredient in other foods.
- 1.2 Parts Two of this Standard also covers honey which is packed for sale in bulk containers, which may be repacked into retail packs.

PART ONE

2. DESCRIPTION

2.1 DEFINITION

Honey is the natural sweet substance produced by honey bees from the nectar of plants or from secretions of living parts of plants or excretions of plant sucking insects on the living parts of plants, which the bees collect, transform by combining with specific substances of their own, deposit, dehydrate, store and leave in the honey comb to ripen and mature.

- 2.1.1 Blossom Honey or Nectar Honey is the honey which comes from nectars of plants.
- 2.1.2 Honeydew Honey is the honey which comes mainly from excretions of plant sucking insects (*Hemiptera*) on the living parts of plants or secretions of living parts of plants.

2.2 DESCRIPTION

Honey consists essentially of different sugars, predominantly fructose and glucose as well as other substances such as organic acids, enzymes and solid particles derived from honey collection. The colour of honey varies from nearly colourless to dark brown. The consistency can be fluid, viscous or partly to entirely crystallised. The flavour and aroma vary, but are derived from the plant origin.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

- 3.1 Honey sold as such shall not have added to it any food ingredient, including food additives, nor shall any other additions be made other than honey. Honey shall not have any objectionable matter, flavour, aroma, or taint absorbed from foreign matter during its processing and storage. The honey shall not have begun to ferment or effervesce. No pollen or constituent particular to honey may be removed except where this is unavoidable in the removal of foreign inorganic or organic matter.
- 3.2 Honey shall not be heated or processed to such an extent that its essential composition is changed and/ or its quality is impaired
- 3.3 Chemical or biochemical treatments shall not be used to influence honey crystallisation.

¹ Secretariat Note: The Revised Codex Standard for Honey was adopted by the 24th Session of the Codex Alimentarius Commission in 2001. At the time of the adoption the Commission agreed that further work would be undertaken on certain technical issues, particularly the provisions concerning Moisture Content.

3.4 MOISTURE CONTENT

- (a) honeys not listed below - not more than 20%
- (b) Heather honey (*Calluna*) - not more than 23%

3.5 SUGARS CONTENT

3.5.1 FRUCTOSE AND GLUCOSE CONTENT (SUM OF BOTH)

- (a) Honey not listed below - not less than 60 g/100g
- (b) Honeydew honey, blends of honeydew honey with blossom honey - not less than 45 g/100g

3.5.2 SUCROSE CONTENT

- (a) Honey not listed below - not more than 5 g/100g
- (b) Alfalfa (*Medicago sativa*), Citrus spp., False Acacia (*Robinia pseudoacacia*), French Honeysuckle (*Hedysarum*), Menzies Banksia (*Banksia menziesii*), Red Gum (*Eucalyptus camaldulensis*), Leatherwood (*Eucryphia lucida*), *Eucryphia milligani* - not more than 10 g/100g
- (c) Lavender (*Lavandula spp.*), Borage (*Borago officinalis*) - not more than 15 g/100g

3.6 WATER INSOLUBLE SOLIDS CONTENT

- (a) honeys other than pressed honey - not more than 0.1 g/100g
- (b) Pressed honey - not more than 0.5 g/100g

4. CONTAMINANTS

4.1 HEAVY METALS²

Honey shall be free from heavy metals in amounts which may represent a hazard to human health. The products covered by this Standard shall comply with those maximum levels for heavy metals established by the Codex Alimentarius Commission.

4.2 RESIDUES OF PESTICIDES AND VETERINARY DRUGS

The products covered by this standard shall comply with those maximum residue limits for honey established by the Codex Alimentarius Commission.

5. HYGIENE

- 5.1 It is recommended that the products covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice - General Principles of Food Hygiene recommended by the Codex Alimentarius Commission (CAC/RCP 1-1969, Rev 3-1997), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.
- 5.2 The products should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

² These levels will be established in consultation between the Codex Committee on Sugars and the Codex Committee on Food Additives and Contaminants as soon as possible.

6. LABELLING

In addition to the provisions of the General Standard for the Labelling of Pre-packaged Foods (CODEX STAN 1-1985, Rev 2-1999), the following specific provisions apply:

6.1 THE NAME OF THE FOOD

- 6.1.1 Products conforming to Part One of the Standard shall be designated 'honey'.
- 6.1.2 For products described in 2.1.1 the name of the food may be supplemented by the term "blossom" or "nectar".
- 6.1.3 For products described in 2.1.2 the word "honeydew" may be placed in close proximity to the name of the food.
- 6.1.4 For mixtures of the products described in 2.1.1 and 2.1.2 the name of the food may be supplemented with the words "a blend of honeydew honey with blossom honey".
- 6.1.5 Honey may be designated by the name of the geographical or topographical region if the honey was produced exclusively within the area referred to in the designation.
- 6.1.6 Honey may be designated according to floral or plant source if it comes wholly or mainly from that particular source and has the organoleptic, physicochemical and microscopic properties corresponding with that origin.
- 6.1.7 Where honey has been designated according to floral or plant source (6.1.6) then the common name or the botanical name of the floral source shall be in close proximity to the word "honey".
- 6.1.8 Where honey has been designated according to floral, plant source, or by the name of a geographical or topological region, then the name of the country where the honey has been produced shall be declared.
- 6.1.9 The subsidiary designations listed in 6.1.10 may not be used unless the honey conforms to the appropriate description contained therein. The styles in 6.1.11 (b) and (c) shall be declared.
- 6.1.10 Honey may be designated according to the method of removal from the comb.
- (a) Extracted Honey is honey obtained by centrifuging decapped broodless combs.
 - (b) Pressed Honey is honey obtained by pressing broodless combs.
 - (c) Drained Honey is honey obtained by draining decapped broodless combs.
- 6.1.11 Honey may be designated according to the following styles:
- (a) Honey which is honey in liquid or crystalline state or a mixture of the two;
 - (b) Comb Honey which is honey stored by bees in the cells of freshly built broodless combs and which is sold in sealed whole combs or sections of such combs;
 - (c) Cut comb in honey or chunk honey which is honey containing one or more pieces of comb honey.
- 6.1.12 Honey which has been filtered in such a way as to result in the significant removal of pollen shall be designated filtered honey.

6.2 LABELLING OF NON-RETAIL CONTAINERS

- 6.2.1 Information on labelling as specified in The General Standard for the Labelling of Pre-packaged Foods and in Section 6.1 shall be given either on the container or in accompanying documents, except that the name of the product, lot identification and the name and address of the producer, processor or packer shall appear on the container.

7. METHODS OF SAMPLING AND ANALYSIS

The methods of sampling and analysis to be employed for the determination of the compositional and quality factors are detailed below:

7.1 SAMPLE PREPARATION

Samples should be prepared in accordance with AOAC 920.180.

7.2 DETERMINATION OF MOISTURE CONTENT³

AOAC 969.38B / J. Assoc. Public Analysts (1992) **28** (4) 183-187 / MAFF Validated method V21 for moisture in honey.

7.3 DETERMINATION OF SUGARS CONTENT⁴

7.3.1 FRUCTOSE AND GLUCOSE CONTENT (SUM OF BOTH)

Determination of sugars by HPLC - Harmonised Methods of the European Honey Commission, Apidologie – Special Issue **28**, 1997, Chapter 1.7.2

7.3.2 SUCROSE CONTENT

Determination of sugars by HPLC - Harmonised Methods of the European Honey Commission, Apidologie – Special Issue **28**, 1997, Chapter 1.7.2

7.4 DETERMINATION OF WATER-INSOLUBLE SOLIDS CONTENT

J. Assoc. Public Analysts (1992) **28** (4) 189-193/ MAFF Validated method V22 for water insoluble solids in honey

7.5 DETERMINATION OF ELECTRICAL CONDUCTIVITY⁵

Determination of electrical conductivity - Harmonised Methods of the European Honey Commission, Apidologie – Special Issue **28**, 1997, Chapter 1.2

7.6 DETERMINATION OF SUGARS ADDED TO HONEY (AUTHENTICITY)⁶

AOAC 977.20 for sugar profile,

AOAC 991.41 internal standard for SCIRA (stable carbon isotope ratio analysis).

³ These methods are identical

⁴ Subject to endorsement by CCMAS

⁵ Subject to endorsement by CCMAS

⁶ CCS noted that a screening method for the detection of cane sugar adulteration of honey was available.

ANNEX

This text is intended for voluntary application by commercial partners and not for application by governments.

1. ADDITIONAL COMPOSITION AND QUALITY FACTORS

Honey may have the following compositional and quality factors:

1.1 FREE ACIDITY

The free acidity of honey may be not more than 50 milliequivalents acid per 1000g.

1.2 DIASTASE ACTIVITY

The diastase activity of honey, determined after processing and/or blending, in general not less than 8 Schade units and in the case of honeys with a low natural enzyme content not less than 3 Schade Units.

1.3 HYDROXYMETHYLFURFURAL CONTENT

The hydroxymethylfurfural content of honey after processing and/or blending shall not be more than 40 mg/kg. However, in the case of honey of declared origin from countries or regions with tropical ambient temperatures, and blends of these honeys, the HMF content shall not be more than 80 mg/kg.

1.4 ELECTRICAL CONDUCTIVITY

- (a) honey not listed under (b) or (c), and blends of these honeys - not more than 0.8 mS/cm
- (b) Honeydew and chestnut honey and blends of these except with those listed under (c) - not less than 0.8 mS/cm
- (c) Exceptions : Strawberry tree (*Arbutus unedo*), Bell Heather (*Erica*), Eucalyptus, Lime (*Tilia spp*), Ling Heather (*Calluna vulgaris*) Manuka or Jelly bush (*Leptospermum*), Tea tree (*Melaleuca spp*).

2. METHODS OF SAMPLING AND ANALYSIS

The methods of sampling and analysis to be employed for the determination of the additional compositional and quality factors set out in Section 1 of this Annex are detailed below:

2.1 SAMPLE PREPARATION

The method of sample preparation is described in section 7.1 of the Standard. In the determination of diastase activity (2.2.2) and hydroxymethylfurfural content (2.2.3), samples are prepared without heating.

2.2 METHODS OF ANALYSIS

2.2.1 DETERMINATION OF ACIDITY

J. Assoc. Public Analysts (1992) **28** (4) 171-175 / MAFF validated method V19 for acidity in honey

2.2.2 DETERMINATION OF DIASTASE ACTIVITY

2.2.6.1 AOAC 958.09

or

Determination of diastase activity with Phadebas - Harmonised Methods of the European Honey Commission, *Apidologie – Special Issue 28*, 1997, Chapter 1.6.2

2.2.3 DETERMINATION OF HYDROXYMETHYLFURFURAL (HMF) CONTENT

AOAC 980.23

or

Determination of hydroxymethylfurfural by HPLC - Harmonised Methods of the European Honey Commission, *Apidologie – Special Issue 28*, 1997, Chapter 1.5.1

2.3. LITERATURE REFERENCES

Bogdanov S, Honigdiastase, Gegenüberstellung verschiedener Bestimmungsmethoden, *Mitt. Gebiete Lebensmitt. Hyg.* **75**, 214-220 (1984)

Bogdanov S and Lischer P, Interlaboratory trial of the European Honey Commission: Phadebas and Schade Diastase determination methods, Humidity by refractometry and Invertase activity: Report for the participants 1993.

Chataway HD (1932) *Canad J Res* 6, 540; (1933) *Canad J Res* 8, 435; (1935) *Canad Bee J* 43, (8) 215.

DIN-NORM 10750 (July 1990): Bestimmung der Diastase-Aktivität.

DIN. Norm, Entwurf: Bestimmung des Gehaltes an Hydroxymethylfurfural: Photometrisches Verfahren nach Winkler (1990)

Determination of Diastase with Phadebas, *Swiss Food Manual*, Chapter 23A, Honey, Bern, 1995.

Figueiredo V, HMF Interlaboratory Trial, Report for the participants, Basel canton chemist laboratory, (1991)

Jeurings J and Kuppens F, High Performance Liquid Chromatography of Furfural and Hydroxymethylfurfural in Spirits and Honey. *J. AOAC*, 1215 (1980).

Determination of Hydroxymethylfurfural by HPLC, *Swiss Food Manual*, Kapitel Honig, Eidg. Druck und Materialzentrale 1995

International Honey Commission Collaborative Trial (in press).

Hadorn H (1961) *Mitt Gebiete Lebens u Hyg*, 52, 67.

Kiermeier F, Koberlein W (1954) *Z Unters Lebensmitt*, 98, 329.

Lane JH and Eynon L (1923) *J Soc Chem Ind* 42, 32T, 143T, 463T.

Schade J. E., Marsh G. L. and Eckert J. E.: Diastase activity and hydroxymethylfurfural in honey and their usefulness in detecting heat adulteration. *Food Research* **23**, 446-463 (1958).

Siegenthaler U, Eine einfache und rasche Methode zur Bestimmung der α -Glucosidase (Saccharase) im Honig. *Mitt. Geb. Lebensmittelunters. Hyg.* **68**, 251-258 (1977).

Turner JH, Rebers PA, Barrick PL and Cotton RH (1954) *Anal Chem*, 26, 898.

Walker HS (1917) *J Ind Eng Chem*, 2, 490.

Wedmore EB (1955), *Bee World*, 36, 197.

White JW Kushnir I and Subors MH (1964) *Food Technol*, 18, 555.

FW (1959) *JAOAC*, 42, 344.

White J, Spectrophotometric Method for Hydroxymethylfurfural in Honey. *J. AOAC*, 509 (1979).

Winkler O: Beitrag zum Nachweis und zur Bestimmung von Oxymethylfurfural in Honig und Kunsthonig. *Z. Lebensm. Forsch.* **102**, 160-167 (1955)

Harmonised methods of the European Honey Commission, *Apidologie - special issue*, **28**, 1997

NOTE: CCS asked CCMAS to consider retaining only those essential references.

PART TWO

[Honey for Industrial Uses or as an Ingredient in other Foods]

This part is subject to further consideration.