

Monitoring Plan for Residues in Honey from Zambia

Produced by members of the Zambia Bee Products Association

Period Covered: January to December 2005

30-03-05

v 8.1

1.0 General Information

1.1 Legislation concerning the use of substances of Annex 1

The relevant information will be forwarded later. Due to the conditions of production of honey in Zambia (no use of pesticides in the area of honey production, use of wild bees, absence of most bee diseases and parasites) the legislative framework concerning veterinary drugs and use of pesticides was not adapted to bees and honey production.

1.2 Infrastructure of the official services; information on co-ordination of the activities of central and regional departments

Honey production in Zambia is carried out almost exclusively by small-scale traditional beekeepers operating in the forested areas of North Western Province. The honey produced by these beekeepers is purchased by three companies:

- North Western Bee Products Ltd
- Forest Fruits Ltd
- Honey Bee Farms Ltd

These companies have formed the Zambia Bee Products Association with the aim of establishing uniform quality control throughout the industry thereby strengthening the reputation of Zambian honey.

Due to the importance of these companies in honey production, handling 95% of marketed production in Zambia, and all exports to the EU, the Monitoring Plan will cover as a matter of priority honey from these companies. It is an advantage to adopt this focus initially due to the central position of these companies in the honey industry and their influence on some 5,000 beekeepers who supply them with honey. From this basis, the plan will be extended to cover other producers who become members of the Zambia Bee Products Association.

Ministry of Agriculture officials are responsible for taking samples of honey at depots of honey producers. These samples are sealed with numbered tamper proof tags; the official makes a manifest listing the samples taken and their tag numbers. The package of samples and the manifest is then sent by DHL to the laboratory in UK for analysis.

The results of this analysis are copied to:

- Ministry of Agriculture and Fisheries
- Exporter
- Importer

The Zambia Bee Products Association will be responsible for submitting the results of monitoring to DG SANCO by 31 March.

Note:

- **Ministry of Agriculture and Fisheries** of Zambia is the competent authority overseeing the monitoring plan for honey.

- **NWBP** (PO Box 140096, Kabompo, Zambia) was the first company producing honey and beeswax on Zambian territory and exporting the products to the EU. Many Zambian honey producers market their honey through this company.
- **Forest Fruits Ltd** (PO Box 160056, Mwinilunga, Zambia). Forest Fruits is based in the highly productive area of Mwinilunga; it buys honey from some 2,000 beekeepers.
- **Honey Bee Farms Ltd** (Chishamba, Zambia) Buys honey from Jivundu area of NWP and is intending to export to the EU.
- **Tropical Forest Products** (PO Box 92, Aberystwyth, UK) is the main importer of Zambian honey in the European Union.

1.3 List of Official Laboratories

The samples shall be analysed at laboratories in UK and Germany. The laboratories used will be:

Heavy Metals:

Campden and Chorleywood Food Research Association Group
Chipping Camden, GL55 6LD, UK

Pesticides, Antibiotics & Sulphonamides:

Applica GmBH
Am Becketal 14
D-28755 Bremen
Germany

1.4 Level of competence of the National Reference Laboratory(s), as well as routine Laboratories, particularly as regards the implementation of Quality Assurance, or GLPs (Dec 98/179/EC).

Laboratory used will satisfy UK and EU legislation. Accreditation includes EN 17025, UKAS and GLP.

1.5 National tolerance limits (MRLs) for authorised substances and environmental contaminants

We will use UK tolerance limits for all approx 60 compounds screened for. Further data on each compound can be provided if necessary.

1.6 Official sampling procedures in the field, including information on how samples are secured after collection (using flow charts) (Dec 98/179/EC)

Samples will be taken by Ministry of Agriculture officials from randomly selected buckets of honey in the storerooms of honey producers. Samples will be taken during the honey harvest seasons. These samples are sealed with numbered tamper proof tags, the official makes a manifest listing the samples taken and their tag numbers. The package of samples and the manifest is then sent by DHL to the laboratory in UK for analysis.

1.7 Description of measures taken by the competent authorities where residues are detected

When residues are detected, the consignment is condemned for export and destroyed or transformed, e.g. by mixing with water, for other uses.

2.0 Background Information on Production

2.1 Animal Species, products and total figures of production.

Products purchased by Zambia Bee Products Assoc members are 150 – 450 tons per year honey and 30 – 75 tons per year beeswax. The honey and beeswax is produced from African honeybees, *Apis mellifera adansonii*.

2.2 Type of Production

Honey is gathered from wild bee colonies that nest in fixed comb bark hives hung up high in trees scattered throughout the approx. 7.5 million ha production area. The area is covered with natural forest with the occasional small clearing for subsistence farming. There is no possibility to use veterinary medicines in this type of beekeeping and very little use of agricultural chemicals in the area. The nearest industrial activity is about 1,000 km distant. The production at NWBP is covered by an Organic Certificate issued by The Soil Association who conduct annual inspections; Forest Fruits has a similar organic certificate from Ecocert.

2.3 Animal Species, products and total figures of production planned to be exported to EU

Products exported are 150 – 450 tons per year honey and 30 – 75 tons per year beeswax. The honey and beeswax is produced from African honeybees, *Apis mellifera adansonii*.

3.0 Scope of the Residue Plan

3.1 Groups of residues covered (as listed in Annex I);

Breakdown of substances monitored in each group by animal species and product (table)

See Results Table.

During 2005, monitoring for **Nitrofurans** metabolites will be added to the table. It would seem to be exercising due diligence to monitor this substance although there is no known level of risk that it might become present in Zambian honey.

3.2 Details of analysis methods - screening/routine and confirmation, with action levels and detection limits

Analysis methods will be broad-spectrum screening for a wide range of possible contaminants where a risk is possible. Samples will be taken at random from buckets of honey in the storerooms. Each bucket is essentially identical and homogenous so random sampling is justified in this case. All buckets are routinely labelled with a code number identifying the producer. See table for details of detection and action levels.

4.0 Frequencies and Levels of the Controls

4.1 Number of samples to be taken for each sub-group of substances in the case of each species/product by reference to the number of animals slaughtered and volume of product output of animal origin in the previous year (Annex IV and Dec 97/747/EC). For third countries, the figures could only refer to exports to EU; in that case, guarantees for appropriate segregation and control must be given

10 samples will be taken in each sub- group, see table.

5.0 Targeting Criteria

5.1 Results from Previous Years

Results of analysis of samples taken during April 2002 to December 2003 showed that honey produced in Zambia often contained streptomycin at concentrations of 3 to 16 ppb. These low levels of Streptomycin are probably originating from natural Streptomyces colonies growing in the environment.

- Virtually all beekeeping in Zambia (> 99.9%) is carried out using fixed comb bark hives occupied by wild bees which have never been found to harbour brood diseases treated by antibiotics.

- The production area is virgin forest where no commercial farming, fruit growing or other potential sources of agricultural streptomycin might occur.

- The fact that many samples from beekeepers over a wide area show some low level of streptomycin rules out contamination by some unlikely chance event.

There are several possible mechanisms by which the streptomycin could enter the hive and eventually come to be detected in the honey. We are presently carrying out a project funded by UK Dept for International Development (Project no: RO5 UK 005) to investigate this issue and expect to have results published by September 2006.

Low levels of streptomycin found in Zambian honey during previous years are being investigated for evidence of natural origin from *Streptomyces* colonies in the environment. PCR analysis of honey and environmental samples has shown the presence of the *strR* gene cluster which indicates that *Streptomyces* are producing streptomycin in the environment from which the Zambian honey is harvested. *Streptomyces* strains tolerant of high sugar levels have been isolated from the honey. This work is ongoing and we hope eventually to gather enough evidence to show that the quantities of streptomycin found in honey could be accounted for from the *Streptomyces* in the environment.

Streptomycin at the concentrations previously detected does not pose a risk to human health. Refer to the attached table for the results of analyses carried out for streptomycin.

Risk analysis data continues to be systematically gathered by trained monitoring agents, on agricultural practices, use of veterinary drugs in bees, pollution by industrial activity etc. From 1990 to date, no activities have been recorded in the main honey producing areas that might give rise to contamination. The activities of these internal monitoring agents are inspected each year by EU accredited organic inspectors (accreditation UK5).

6.0 Contact Details

Any correspondence concerning this plan or the results of residue monitoring should also be copied to:

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