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Report

Pacific Horticultural and Agricultural Market Access (PHAMA) Program

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VAN10 (Stage 2): Market Access Development for Bee Products from Vanuatu

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ABBREVIATIONS

Abbreviation	Description
AFB	American foulbrood; disease of the brood caused by a bacterium
AUD	Australian dollar
BV	Biosecurity Vanuatu
DFAT	Australian Department of Foreign Affairs and Trade
EFB	European foulbrood; disease of the brood caused by a bacterium
EU	European Union
MPI	Ministry for Primary Industries (New Zealand)
NZD	New Zealand dollar
OIE	World Organisation for Animal Health
PHAMA	Pacific Horticultural & Agricultural Market Access program
PVO	Principal Veterinary Officer
SOP	Standard operating procedure
TSE	Transmissible spongiform encephalopathy
URS	URS Australia Pty Ltd
VT	Vanuatu vatu

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EXECUTIVE SUMMARY

The Pacific Horticultural and Agricultural Market Access program (PHAMA), funded by the Australian Department of Foreign Affairs and Trade (DFAT), is designed to address constraints to market access from primary products.

In 2012, PHAMA funded a survey in Vanuatu (Activity VAN10 Stage 1, PHAMA Technical Report 34) to determine bee disease status with a view to potential support for market access bids for honey and honey products. The survey confirmed that the disease status is such that market access negotiations should have few zoosanitary limitations. PHAMA has now funded Activity VAN10 Stage 2, focussed on strengthening biosecurity protections relating to bees and honey products, and the establishment of systems to support market access submissions for honey and honey products to the target markets of New Zealand and New Caledonia nominated by industry stakeholders.

A literature review was conducted to determine how best to manage the spread of *Apis cerana* (Asian honey bee) from areas where it was identified in the 2012 survey. The review concluded that there have been no successful strategies to limit the spread of *Apis cerana* where it is considered a pest. However, it is desirable for Vanuatu to at least try to contain *Apis cerana* within those islands where it has become established. Public awareness raising measures will be carried out by Biosecurity Vanuatu (BV), targeting risk pathways such as ports, commercial shipping and yachts.

Given that *A. cerana* is not a certification concern for the export of bee products to the nominated target markets, and that it is not currently threatening the honey bee (*A. mellifera*) population in Vanuatu, it is recommended that a watching brief be kept with periodic reviews of the local situation and any strategies that emerge in the literature.

An assessment of residue sampling requirements was conducted. At the current honey production rate (less than 10 tonnes), the implementing of a honey residue testing program to meet European Union market access requirements is unlikely to be cost effective. However, as production (and consequently export volume) increases, this should be reviewed.

A review of import requirements for the target markets and of Vanuatu's legislation supporting health and disease certification was conducted. This review showed that BV should be able to meet existing New Caledonia import requirements, and that an access bid for New Zealand should be able to be supported. It also showed that there is sufficient legislation in place to protect Vanuatu from the introduction of honey bee pests and diseases, and to carry out surveillance for the purpose of country freedom declarations and control measures for endemic diseases and exotic honey bee disease surveillance. It was noted that the legislative framework relies on the competence of quarantine officers and the Competent Authority, and that adequate government resourcing is available for effective biosecurity operations.

Up-skilling of the Competent Authority was conducted with training of veterinarians and quarantine officers in a series of workshops. Technical specifications were developed to fill gaps in BV's standards on imports for honey and honey products. The Principal Veterinary Officer received additional training in Vanuatu, and subsequently in New Zealand, relating to the identification and diagnosis of honey bee diseases and pests and the development of a surveillance program appropriate to Vanuatu. Training resource materials were made available to BV for future internal training and biosecurity awareness campaigns.

Specifications for an appropriate surveillance plan were determined and appropriate documentation developed (see Appendix C). BV felt that it has capacity to be involved with the inspection process on Efate (where approximately 90% of the hives are situated). On the other five islands on which there are managed honey bee colonies, surveillance would be carried out either by BV, Department of Livestock, industry, or a combination but managed by BV. A series of operating procedures to guide BV in implementation of the disease surveillance plan have been developed and provided to BV for their final adaptation to fit their needs. BV plans to implement the program in early 2015.

Once the disease surveillance system is implemented and records are being generated, AsureQuality Ltd will collaborate with PHAMA and BV on a market access submission to New Zealand using the information from the 2012 survey in order to confirm country freedom from European foulbrood disease. The submission will need to include information on the ongoing surveillance plan to support the country freedom statements. In the first instance, the market access request will seek to have Vanuatu included with the five other Pacific nations in the current New Zealand import health standard for bee products, on the basis that the current disease status is at least equivalent and that systems to be put in place to support ongoing zoosanitary declarations are robust.

INTRODUCTION

1

The Pacific Horticultural and Agricultural Market Access program (PHAMA) is designed to address constraints to market access for primary products by providing practical and targeted assistance to gain and maintain access to key markets for selected products.

Honey and other bee products entering many countries are subject to various restrictions. For example, to enter New Zealand a bee product must meet the current Import Health Standard. This standard only allows bee products from selected countries to enter New Zealand. Honey must be accompanied by a zoosanitary certificate issued by the veterinary/competent authority of the exporting country, certifying the origin of the honey and disease status of the country.

In October 2012, AsureQuality Ltd partnered with Biosecurity Vanuatu (BV) (formerly part of the Department of Livestock and Quarantine Service) to deliver PHAMA activity VAN10: "Disease Survey of Honey Bees in Vanuatu". The report from that initial activity made several recommendations for further work to support Vanuatu in their attempt to secure export markets for their bee products.

Following a request from the Vanuatu Market Access Working Group, PHAMA has engaged AsureQuality Ltd to undertake a Stage 2 to activity VAN10. Stage 2 involves five areas of work:

- Investigate the market access requirements for the nominated target countries: New Zealand and New Caledonia.
- Assist BV and stakeholders to establish a cost-effective residue sampling and testing program relevant to any identified market access needs.
- Deliver additional training recommended under the initial VAN10 Stage 1 report to BV and stakeholders in order to establish an appropriate structure and operation of health surveillance to meet New Zealand and New Caledonia import requirements.
- Assist BV and stakeholders to develop specific activities to work collaboratively to control and suppress the Asian honeybee.
- Assist BV in the collation and preparation of appropriate documentation to form the basis for a market access submission to New Zealand and New Caledonian authorities.

2 MARKET ACCESS REQUIREMENTS FOR NOMINATED TARGET COUNTRIES

Stakeholders have nominated New Zealand and New Caledonia as target markets of interest for potential export. There is also potential interest in export to the European Union (EU); however, no commercial contacts have been confirmed. Residue sampling requirements for the EU market are well defined and would form a significant aspect of any market access bid if commercial contacts were to be confirmed. At present, New Zealand and New Caledonia are the market focus.

As a general point, there is no legislation in Vanuatu supporting the signing of official assurances by BV as the Competent Authority for animal product exports, with the exception of meat products which are specifically legislated under the Meat Act 1991. However, it is understood from discussions with BV that this does not represent a legislative boundary in relation to the signing of any negotiated official assurances relating to export certification by the department.

2.1 New Zealand

The current New Zealand Ministry for Primary Industries (MPI) Import Health Standard for Specified Processed Bee Products restricts the import of honey into New Zealand in all but a few situations. These situations are defined in the eligibility section of the standard and are as follows:

Processed composite foods, food ingredients and beverages containing honey (Clause 7.3). If these foods are boiled or fried they must be shelf stable (e.g. baked muesli bars, cereals, boiled sweets, caramels, etc.). If they are not boiled or fried, they must contain less than 2% honey. Additionally, products containing up to 50% honey can be imported provided that the honey component has been heat treated according to the regime specified in the standard.

Dietary supplements and medical preparations (Clause 7.4). If these products contain honey, they must be completely encapsulated by an edible substance that does not contain sugar, fruit, honey, pollen or royal jelly (e.g. gelatin) and must be packaged in consumer ready packs. If they are not encapsulated, then they must contain less than 2% honey. Additionally, the honey component can be heat treated according to the regime specified in the standard.

Clause 7.4 also allows for bulk honey for further processing to be imported to a transitional facility for processing into capsules.

Cosmetics containing honey (Clause 7.5). These products must be commercially prepared.

Honey from Niue, Samoa, Solomon Islands, Tonga and Tuvalu (Clause 7.6). The product must be accompanied by a zoosanitary certificate issued by the veterinary authority of the exporting country which certifies that the honey originates from that country, and that the country is free from European foulbrood disease (EFB).

Samples of honey for evaluation and subsequent destruction (Clause 7.7).

Honey of New Zealand origin (Clause 7.8).

Currently, Vanuatu does not have market access to New Zealand. Once BV has established the disease surveillance system recommended in this report, including implementation of the

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required procedures, and begun to accumulate inspection records, Vanuatu will then be in a position to progress a market access submission.

A market access submission will need to be put to New Zealand MPI using the information from the October 2012 survey in order to confirm country freedom from EFB disease. Additionally, the submission will include information on the ongoing surveillance plan to support the country freedom statements. In the first instance, the market access request will seek to have Vanuatu included with the five other Pacific nations in clause 7.6 on the basis that the current disease status in Vanuatu is at least equivalent to the listed countries, and that the systems that will be in place to support ongoing declarations are robust.

The submission will also include information on border protection and food safety in the event that Vanuatu needs to negotiate a separate set of requirements independent of clause 7.6.

2.2 New Caledonia

New Caledonia has issued a veterinary certificate template for the import of products for human consumption, which includes honey. The declaration section of the template is in two parts; the first part contains generic declarations that are applicable to all products, while the second part is specific to bee products.

The generic declarations are as follows:

The above-listed products have been obtained, prepared, handled and stored in accordance with the exporting country's health requirements for production and control as provided for by the exporting country's legislation and are therefore deemed fit for human consumption and preserved from any direct or indirect contamination by products, goods or any objects that do not show the same guarantees in terms of animal health or food safety.

Currently this declaration could be signed making use of the generic requirements as defined in the Food Regulations (under the Food Act). BV veterinarians will need to be appointed as "authorised officers" under clause 10(c) of the Food Act in order to inspect the processing premises and, in turn, be confident in the declaration that they are signing.

The above-listed products or their packages bear an official health marking certifying that they were entirely produced and inspected at the establishments stated, which are authorised to export by the exporting country.

There is currently no process for the approval of premises and the issuing of an approval number other than for meat products. However, it should be possible for BV to draft a standard operating procedure for the issuing of premises approval codes for bee product processors. The Food Control Regulations Order 2009 contains generic requirements relating to: the construction of food premises, potable water, cleaning, pest control, food processing and handling, and labelling and transportation of food products. This would provide an adequate framework from which to certify premises processing bee products.

The modes of transport and loading conditions meet the exporting country's legal requirements in terms of food safety.

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Clause 45 of the Food Regulations Order 2009 stipulates the requirements for the transport of food products. Provided that these requirements are complied with, this declaration could be signed.

The exporting country's arrangements to manage the risks associated with transmissible spongiform encephalopathy (TSE) agent is at least equivalent to recommendations of World Organisation for Animal Health (OIE).

BV is confident that Vanuatu meets this requirement.

The specific declarations applicable to extracted honey are as follows:

The above-listed products are being exported from a country or zone specified in Appendix VIII-11 of the present decree and that they meet any restrictive requirements which may be set forth in column 3 of Appendix VIII-11 of the present decree.

This declaration can be signed providing that packaging restrictions are complied with. Vanuatu is specified in Appendix VIII-11 but there is a restriction (in column 4 rather than 3) stating that only extracted honey can be sent and that it must be in retail packs of 500g or less.

The above-listed honey, pollen gathered by honey bees, propolis and royal jelly were collected only in countries, zones or apiaries free from American foulbrood and countries, zones or apiaries free from European foulbrood.

An EFB country freedom declaration can be signed now, and the disease surveillance program proposed in this report will support a zone freedom declaration for American foulbrood (AFB). Additionally, as discussed later in the report, BV plans to declare AFB a controlled disease under the Animal Disease Control Act. This, amongst other things, will place restrictions on the harvest of honey from AFB infected hives. It is hoped that AFB can be eliminated from Vanuatu and so ultimately this declaration will be supported by country freedom declarations for both diseases.

In summary, it can be seen that market access bids for both New Zealand and New Caledonia can be supported. However, this will be dependent on BV implementing and maintaining the surveillance systems recommended in this report.

3 RESIDUE SAMPLING AND TESTING PROGRAM REQUIREMENTS

Honey processors in New Zealand currently participate in a national residue testing program operated by MPI. Testing is undertaken for chloramphenicol, nitrofurans, other antibiotics, carbamates, synthetic pyrethroids, organophosphates, organochlorines, heavy metals and amitraz (http://www.foodsafety.govt.nz/industry/sectors/honey-bee/exporting/rcs.htm).

This testing supports access into the EU market, with the current requirement being ten samples for every 300 tonnes of honey produced annually up to 3000 tonnes, and one sample for every 300 tonnes thereafter.

As the honey production in Vanuatu (less than 10 tonnes) is currently very low by EU standards, and is unlikely to exceed 300 tonnes without considerable additional investment, the residue testing requirement is (and will likely remain at) 10 samples.

The EU-published table titled *Substances or Group of substances to be monitored for in the relevant commodity* lists three essential substances or groups of substances for which testing is required and a further four groups for which testing is highly desirable. The three essential substances or groups are:

- Chloramphenicol
- Nitrofurans
- Antibacterial substances (chosen on the basis of what is authorised in the relevant livestock sector).

The four highly desirable groups are:

- Carbamates and Pyrethroids
- Organochlorine compounds including Polychlorinated biphenyls
- Organophosphorus compounds
- Chemical elements.

The cost of testing 10 samples for both the essential and highly desirable substances and groups of substances is NZD9500 per annum. If just the compounds on the essential list were tested, the cost would be NZD7200 per annum. If testing individual samples (such as would be the case if end-point testing of individual batches was carried out), the cost per sample is NZD1163 for all tests or NZD840 for the essentials. A quote for potential testing costs is attached as Appendix D.

Confirmation of the sample sizes required by the EU for Vanuatu will require dialogue with the EU as part of a third-country application. However, at the current production rate, the implementing of a honey residue testing program is unlikely to be cost effective. However, as production (and consequently export volume) increases, this should be reviewed. The review should take into account the volume of honey requiring EU eligibility at the time.

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4 LEGISLATION REVIEW

4.1 Border Protection

In order to protect the disease status of the honey bee population in Vanuatu, appropriate legislation around border protection must be in place. The Animal Importation and Quarantine Act 1988 is the current legislation controlling the import of risk material. The stated aim is "...to make provision for the regulation and control of the importation of animals, animal products and biological products into Vanuatu, and for matters connected therewith."

The Animal Importation and Quarantine Act 1988 defines an animal as: *"any living stage of any member of the animal kingdom except human beings and includes arachnids, birds, crustacean, fish, insects and reptiles and also fertilised egg or ovum."* This definition covers bees and pests associated with bees (e.g. internal and external mites, small hive beetle, etc.).

An animal product is defined as "any part of the animal including the flesh, wool, hair, skin, hide, bone, horns, hooves, feathers, and other portions of the carcass and viscera, blood, milk, fluids, semen, excreta, and any product that is wholly or partly derived from an animal or any part of an animal." This definition is adequate to cover honey and honey products.

A biological product is defined as "any substance, chemical, organism or micro-organism having a biological effect on animals or their products, and includes drugs, medicines and remedies, hormones, growth promotants, antibiotics, protozoa, fungi, bacteria, viruses or parasites capable of causing any disease in animals (or if dead was so capable when living)". This adequately covers any pest or disease of honey bees.

It appears that bees, bee products, and the pests and diseases associated with bees are defined adequately within the Animal Importation and Quarantine Act 1988.

The Act forbids the import or introduction of any animal, animal product or biological product into Vanuatu unless a permit has been issued or there are specific regulations under the act allowing it (Clause 2). Additionally, Clause 18 gives specific ability to restrict the import of animals and Clause 16 can restrict the import of biological products.

Any application for an import permit requires authorisation from the Principal Veterinary Officer (PVO) (Clause 4) and implies that a risk analysis process will be undertaken.

The Act gives quarantine staff adequate powers to search and detain risk product at the border. Additionally, veterinary officers have the power to treat, disinfect, fumigate or sterilise as required.

It appears that there is sufficient legislation in place to protect Vanuatu from the introduction of honey bee pests and diseases. The Animal Importation Quarantine Regulations (1994) adequately support the Act and provide additional clarification where necessary.

It was also noted that this legislation relies on the competence of quarantine officers and the Competent Authority (which is being addressed as part of this VAN10 Stage 2 work), and there being adequate resourcing available for effective biosecurity operations.

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4.2 Disease Surveillance

Surveillance programs for animal diseases are supported by the Animal Disease Control Act (1992) and the Animal Disease Control Act Regulations (2003). The definition of "animal" in the Animal Disease Control Act is the same as in the Animal Importation and Quarantine Act (1988), so honey bees are adequately covered.

Clause 4 of the Animal Disease Act gives the ability to carry out a disease survey, in this case on bees, with the authorisation of the Minister.

Clause 17 of the Act also provides the ability to:

- Declare a "controlled disease", which could be done for AFB disease to allow control (and potential eradication) measures to be taken
- Declare notifiable diseases, which are the diseases listed in the Terrestrial Animal Health Code or the Aquatic Animal Health Code published by OIE. This covers all exotic bee diseases and pests of interest
- Maintain a register of beekeepers and apiaries
- Undertake control or eradication measures for specified diseases.

It appears that there is sufficient legislation in place to carry out surveillance for the purpose of country freedom declarations and control measures associated with endemic diseases and exotic disease surveillance. Existing legislation also provides for supporting infrastructure such as an apiary register.

4.3 Issuing of Official Assurances

Of the legislation currently supporting BV's work, the Meat Act 1991 is the only legislation under which official assurances for the export of animal products are currently provided. However, on discussing this issue, it was determined that there was no legislative impediment to the Competent Authority making an official assurance on a negotiated export certificate for bee products.

4.4 Certification of Export-Approved Processing Premises

The Food Act 1999 currently allows for the approval of premises that commercially process food for human consumption. The act also allows BV veterinarians to be appointed as food control officers under the act if necessary, and therefore control the quality of bee product processing premises. Official assurances could then state that product was processed according to Vanuatu law and is fit for human consumption.

The Food Control Regulations Order 2009 contains generic requirements relating to: the construction of food premises, potable water, cleaning, pest control, food processing and handling, and labelling and transportation of food products. This would provide an adequate framework from which to certify premises processing bee products.

4.5 Residue Testing Program

The Food Act 1999 does allow for samples to be taken and tested and would therefore support a residue testing program. However, BV considers that given the small number of



commercial apiarists any residue testing conducted based on market access requirement would be voluntary (no testing / no product eligibility) and therefore legislative support is not essential.

5 UP-SKILLING OF THE COMPETENT AUTHORITY

The Competent Authority in Vanuatu is BV, and the signatories are the veterinarians, of which there are two on Efate and one on Santo.

5.1 Border Protection

Up-skilling of the Competent Authority began with the attendance of the Efate-based veterinarians at two quarantine training days. This formed the basis of subsequent discussions around potential improvements that could be made at the border in relation to the risk of an exotic bee disease or pest incursion.

The resource materials used for the quarantine training have been made available to the Competent Authority, thus allowing them to conduct future additional internal training for quarantine officers, animal health officers and veterinarians who were unable to attend the training led by AsureQuality Ltd.

5.2 Disease Diagnosis / Apiculture Surveillance

The PVO received training in Vanuatu and subsequently in New Zealand, particularly relating to the identification and diagnosis of honey bee diseases and pests. This training took the form of PowerPoint presentations and discussions in Vanuatu, followed up by more practical training in New Zealand.

In conjunction with discussions around the development of an apiculture surveillance program, a presentation familiarising the PVO with the equivalent program in New Zealand was delivered. This provided a start point for the development of the Vanuatu program and also drew attention to the need for industry education and awareness around both exotic and endemic honey bee diseases.

While in New Zealand, the PVO was taken through the process of inspecting and sampling an apiary as if it was part of the New Zealand Apiculture Surveillance program. Further inspection work was done at another apiary, focusing on detection methods for external mites. The goal of this inspection work was to increase knowledge of surveillance methods for exotic bee pests and diseases, and also to expose the PVO to working with beehives so as to increase her level of comfort and familiarity around honey bees.

To complete the disease training, the PVO attended an AFB competency course run by the Waikato Beekeepers Association. This focused on the identification and sampling of AFB, as well as techniques for the control and eradication of the disease.

Reference samples have been provided to BV for two exotic pests of honey bees (Varroa destructor and Small Hive Beetle). Good quality photos of other diseases have also been provided within the PowerPoint presentations included in the training resource materials.

Meetings with staff from the New Zealand MPI Investigation and Diagnostic Centre, who test exotic honey bee pest samples, and Plant and Food Research Apiculture section, who test AFB samples, provided familiarity around the sample testing process and gave some insight as to what capacity could be developed in Vanuatu.



5.3 Bee Product Processing Standards

Training and familiarisation in bee product processing standards was carried out via a combination of presentation material, discussion around standards and visits to three processing premises while in New Zealand. The goal was to present the standard that New Zealand expects of export-approved premises and thus provide a level of calibration around the expectations that BV will have of locally-based premises.

6

UP-SKILLING IN THE IDENTIFICATION AND MANAGEMENT OF QUARANTINE RISKS ASSOCIATED WITH BEE PRODUCTS

Training of BV quarantine staff and veterinarians (specifically looking at border protection in relation to bee pests and diseases) was undertaken in two one-day workshops. Five trainees were in attendance the first day and a further three attended the second day's training.

Issues identified in the training and subsequently discussed with the PVO included:

- Lack of clear guidelines around the handling of raw bee products other than honey (royal jelly was specifically identified)
- Lack of guidelines for the handling of value-added products (such as honey lozenges, propolis tinctures, beauty products, etc.)
- Lack of a process around the reporting of live bees on imported cargo (e.g. attached to the outside of a container)
- Some breakdown in communication/process around the release of identified quarantine material (one particular case study that occurred recently was discussed).

It was resolved that some guidelines should be produced to reinforce the training information around the handing of raw bee products (not including honey) and value-added products (see Appendix A).

It would also be worthwhile having a process in place to deal with the sampling and destruction of bees suspected of being introduced into Vanuatu via commercial shipping, yachts, etc. A basic procedure was developed as a guide for BV staff (see Appendix B). It was also felt that some education / awareness raising measures would be useful to ensure that these suspect incursions are not mishandled by well-meaning port staff.

7

DEVELOPMENT OF A BEEKEEPER/APIARY REGISTER

A beekeeper register is currently being maintained at Syndicat Agricole, a farmers cooperative through which farmers can gain access to competitively priced farming materials.

In order to be a member of Syndicat Agricole, farmers are required to pay 2000VT (approximately AUD20) per year. The membership fee is currently waived for beekeepers purchasing materials stocked by Syndicat Agricole.

BV has indicated that it would be prepared to set up and maintain a database of beekeepers and apiaries throughout Vanuatu, most likely making use of a Microsoft Access database. Maintenance of the database could be done via a combination of livestock officers collecting information from their respective areas (although this would have to be negotiated between Department of Livestock and BV), information provided via local industry (such as Gilbert Gibson), and information collected by Syndicat Agricole.

Discussion around education and awareness raising measures concerning the apiary register concluded that making beekeepers aware of the benefits of registration would improve the likelihood that beekeepers would register and keep their information up-to-date. Some benefits of registration could include:

- Being provided with information about bee disease and risk pathways for exotic bee diseases
- Access to both domestic and internationally provided training (via New Caledonia)
- Access to local beekeeping expertise
- Knowledge that they are helping to open new markets for Vanuatu honey (and possibly other bee products).

The minimum information held on the apiary database was discussed and could include:

- Beekeeper contact details:
 - Address
 - Phone
 - Email
- Apiary information:
 - Location information such as address, landowner details, geo-location information, description on how to get to the apiary (if applicable)
 - Number of hives on site
 - Inspection history
 - Disease history
 - Hive movement history, including sales and purchases.

The database would also link beekeepers to their apiaries, as spread of disease within an operation is often more likely than spread between operations. It was also noted that most beekeepers operate hives on only one apiary.

It would be advantageous to be able to store information on the source and spread of managed colonies on the database. Many hives have come from within the main commercial apiarist Gilbert Gibson's operation, and information on these connections and dates associated with the movement of the bees would also assist with endemic disease control (e.g. AFB) and any exotic disease investigations.

The database would be used to generate an apiculture surveillance visit plan each year and also record apiculture surveillance inspections and any results from sample testing. This information store would ultimately be used to support country freedom declarations.

8

DEVELOPMENT OF A DISEASE SURVEILLANCE PLAN

BV and the beekeeping industry were involved in discussions regarding the planning and execution of an ongoing apiculture surveillance program in Vanuatu. It is proposed that the surveillance program will have three purposes:

- To enable BV to continue making country freedom declarations, particularly those that support the issuing of Official Assurances
- To enable BV to carry out an effective disease control program for AFB, with the ultimate aim of eradicating the disease
- To give BV the widest range of eradication/control options for an exotic disease incursion through early detection.

BV is willing to coordinate the ongoing surveillance program and be involved in the inspection and sample collection process. BV would be supported by experienced industry members and, by negotiation, possibly Department of Livestock staff. BV felt that it has the capacity to be involved with the inspection process on Efate (where approximately 90% of the hives are situated). Surveillance on the other five islands that have managed honey bee colonies will be carried out either by BV, Department of Livestock, industry or a combination but managed by BV. Other than Efate (and surrounding islands), bees are kept on Santo, Malekula, Tanna, Mota and Aneityum.

The proposed plan (see Appendix C) will survey a minimum of 20% of managed apiaries over a 12-month period. This will involve annual visits to Santo, Malekula, Tanna, Mota and Aneityum by BV staff, livestock staff or trained industry members employed by BV and acting on its behalf. Apiaries will be inspected during these visits and samples would be collected and taken back to Efate for analysis. Apiary surveillance on Efate will occur in a similar fashion to the other islands but inspections will take place quarterly, rather than annually. These inspections will be undertaken by BV staff working with industry.

The specification also requires that different apiaries are to be inspected each year, so that over a period of five years all apiaries on Vanuatu will be inspected. The exception to this will be apiaries that are deemed to be in high risk areas. These are areas close to potential introduction points such as ports, airports, rubbish dumps, etc. or areas where there is a history of AFB disease.

There are several options for analysing samples collected as part of the surveillance program. Sending samples offshore to New Zealand is one option that may have to be considered in the short term. However, as a longer term solution, it is possible to develop the laboratory capacity in Vanuatu to analyse samples for internal mites, external mites and beetles. New Zealandbased laboratories could confirm suspect mites or beetles via high resolution photography. Bacterial suspects would need to be confirmed offshore; however, these are typically unusual in disease surveillance programs where EFB and Varroa destructor are exotic.

A series of operating procedures to guide BV in implementation of the disease surveillance plan have been developed and provided to BV for final adaptation to fit its needs. BV plans to implement the program in early 2015. The results of the surveillance program should be communicated to all relevant parties such as OIE and trading partners as appropriate. In addition to the active surveillance plan, awareness raising measures within industry will be undertaken. This will have the effect of raising the level of passive surveillance within Vanuatu.

URS KALANG

9 DEVELOPMENT OF ASIAN HONEY BEE CONTROL AND SUPPRESSION PLAN

9.1 Quarantine Options for Asian Honey Bees

Apis cerana is an endemic pest species in Vanuatu, having been discovered by a local commercial beekeeper in 2011 and confirmed during the PHAMA-funded disease survey in October 2012. However, *Apis cerana* was confirmed only on the island of Efate and two neighbouring islands very close to Efate (Pele and Emao). For this reason, quarantine measures are being considered to limit the spread of *Apis cerana* to other islands within Vanuatu.

In early 2013, a literature review on the Asian honey bees (Indo-Malayan subgroup of *Apis cerana*, referred to as *Apis cerana Java* genotype) was commissioned by the Queensland government. The review provided thorough background knowledge of the species in order to aid in developing a suite of control measures for Asian honey bees (*A. cerana Java* genotype) and help limit the impact on honey production (Department of Agriculture, Forestry and Fisheries 2013). It is information from this publication that has contributed to the following recommendations and outcomes.

There have been no successful strategies to limit the spread of *Apis cerana* in areas in which it is considered a pest. However, it is recognised that it is desirable for Vanuatu to, where possible, contain *Apis cerana* within those areas where it has become established.

Public awareness raising measures will be carried out by BV, specifically targeting risk pathways. These include port staff, commercial shipping companies (particularly those involved with inter-island and ex-Solomon Islands shipping) and yachts (as this seems to be the introduction pathway in Queensland).

The awareness raising material will include information on the behaviour of *Apis cerana* (such as how honey bee colonies are transported), identification information and contact details in the event of a discovery.

BV will undertake to respond to calls and a protocol (proposed in Appendix B) will be established around the sampling, testing and depopulation of colonies reported on vessels or close to the wharf.

9.2 Control and Suppression Techniques for Asian Honey Bees

The literature review is clear that control and suppression techniques are low tech but timeconsuming and therefore costly. The report talks of the Queensland response to *Apis cerana* involving destroying some 800 nests at a considerable expense. Ultimately, in 2011, control measures ceased and as at the time of the report, *Apis cerana* did not seem to be having an adverse effect on *Apis mellifera* colonies.

In Solomon Islands, various baiting techniques were trialled, the most effective of which could suppress *A. cerana* in an area for between 4 and 9 months. This required the removal of all managed colonies from the area and the setting-up of bait stations at 500m intervals. *Apis cerana* were recruited to the bait stations using sugar syrup, which was subsequently laced with fipronil insecticide.



9.3 Developing a Plan around Asian Honey Bee Control

Discussion with industry members established that, at this stage, *Apis cerana* was not causing significant issues (more akin to the Queensland experience than the Solomon Islands experience).

Given that *A. cerana* is not a certification concern for the export of bee products to the target markets and that it is not currently threatening the *A. mellifera* population in Vanuatu, it is recommended that a watching brief be kept. Periodic reviews of the local situation and the situation in Queensland should be undertaken.

LIMITATIONS

10

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It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this Report.

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APPENDIX A SUGGESTED GUIDELINES IN RELATION TO THE HANDLING OF IMPORTED RAW AND VALUE-ADDED BEE PRODUCTS AT THE BORDER

Product	Risk	Suggested quarantine decision
Honey (extracted or in comb)	High	Follow current import requirements for
Processed products containing honey:		honey
 Cooked/baked products 	Low	Allow import
 Other products 	Medium/High	Follow current import requirements for honey
Bee-collected pollen		
 Granules/powder (loose) 	High	Follow current import requirements for bee products
 Encapsulated 	Low	Allow import provided capsule is not attractive to bees (i.e. capsule is not made from sugar, honey, pollen, etc. e.g. gelatin)
Propolis products (tincture, toothpaste, cosmetics)	Low	Allow import
Beeswax:		
 Products (candles, polish, etc.) 	Low	Allow import
 Foundation sheets 	Medium	Follow current import requirements for bee products
Royal jelly		
 Non-encapsulated 	High	Follow current import requirements for bee products
 Encapsulated 	Low	Allow import provided capsule is not attractive to bees (i.e. capsule is not made from sugar, honey, pollen, etc. e.g. gelatin)
Bee venom products	Low	Allow import
Cosmetics containing bee products	Low	Allow import

It is assumed that product being presented is commercially prepared and thus any quarantine risk from contaminated packaging (e.g. soil on drums) has not been considered.

APPENDIX B SUGGESTED PROCESS FOR THE DEPOPULATION OF RISK SWARMS SUCH AS THOSE FOUND ON OR NEAR A PORT PROPERTY

- 1. On receipt of a swarm / feral colony notification, log the information. Preferably this would be on a centrally managed file such as a spreadsheet.
- 2. Reports should be attended to as soon as possible, as swarms can disperse quickly and thus spread any potential disease.
- 3. Take a sample of approximately 300 bees in a jar (about one-third of a 500g jar) and a sample of comb if available prior to destroying the colony. This sample/s should be placed in a freezer as soon as practical after destroying the colony.
- 4. Depopulate the colony by dusting insecticide powder (e.g. Carbaryl) on the bees. The level of technology used can vary from an old shampoo bottle containing the powder through to a CO₂ powered venturi system. Both are equally effective, although the more high tech solutions often have a greater operating range.
- 5. For colonies that are inaccessible, record the information on the log and consider directing additional surveillance activity in the area. Additionally, targeted baiting of these colonies may also be considered.
- 6. Revisit the colony after 24 hours to confirm that the colony has been destroyed. Repeat treatment if necessary. Check the insecticide is still active (note: Carbaryl can be denatured by high temperatures). In the event that there are combs remaining, remove these and destroy by burning.
- 7. Arrange for the samples to be tested where possible. Testing should be completed for EFB, small hive beetle, tracheal mites, exotic external mites such as *Varroa spp.* and *Tropilaelaps spp.*, and undesirable *Apis mellifera* strains.

APPENDIX C APICULTURE EXOTIC AND ENDEMIC DISEASE AND PEST SURVEILLANCE SPECIFICATION

Purpose:

- To support OIE disease status declarations made in regard to the honey bee population in Vanuatu.
- To detect an apicultural exotic pest or disease at an early stage so as to be able to consider the best eradication or control options.
- To support the market access requirements of current and potential trading partners.

Scope:

The Apiculture Exotic Disease and Pest Surveillance Program will focus on the islands on which there are populations of *Apis mellifera*, namely Efate, Santo, Malekoula, Tanna, Mota and Aneityum. 20% of managed colonies will be inspected every year. This will take the form of an annual inspection round on Santo, Malekoula, Tanna, Mota and Aneityum and quarterly inspections on Efate.

Different apiaries will be inspected each year so that over a period of 5 years all hives in all apiaries on Vanuatu will be inspected. The exception to this will be apiaries that are deemed to be in high risk areas. These are areas close to potential introduction points such as ports, airports, rubbish dumps, etc. or areas where there is a history of AFB disease.

The pests and diseases of interest include:

- American foulbrood disease (Paenibacillus larvae larvae)*
- European foulbrood disease (*Melissococcus plutonius*)
- Small hive beetle (Aethina tumida)
- Varroa spp. (excluding Varroa jacobsoni)
- Asian mites (*Tropilaelaps spp.*)
- Tracheal mites (Acarapis woodi)
- Undesirable Apis mellifera strains (e.g. A. scutellata, A. capensis etc.)
- Apis cerana (Asian honey bee).

* Note: American foulbrood is currently endemic only on Efate but is limited to a single valley. As such, it is a goal of this program to control and destroy all identified cases of American foulbrood and eradicate the disease.

Legal Requirements

At all times, inspectors are to work within the legal framework as advised by Biosecurity Vanuatu.

Note: It is advisable that during fieldwork all inspectors carry a letter issued by Biosecurity Vanuatu explaining the apiculture surveillance program and the purpose of the inspection.

Procedures:

- SOP14002: Beekeeper Extension
- SOP14003: Technical Development Training
- SOP14004: Suspect Disease Investigation
- SOP14005: Disease Surveillance Program Design and Preparation
- SOP14006: Inspection and Sampling
- SOP14007: Cleaning and Disinfecting
- SOP14008: Sample Dispatch
- SOP14009: Program Reporting



APPENDIX D HONEY SAMPLE RESIDUE TESTING COSTING

Refer accompanying quote ID: 3411 from AsureQuality Ltd dated 24 October 2014.











www.asurequality.com info@asurequality.com

24 October 2014

Quote ID: 3411

Byron Taylor AsureQuality Limited – Hamilton Field Services Apicultural Advisory Officer 31 Norman Hayward Place Te Rapa Private Bag 3080 Hamilton

Dear Byron

With reference to your enquiry, AsureQuality welcomes the opportunity to offer the following proposal to AsureQuality Limited – Hamilton Field Services for the analysis of honey for chloramphenicol, nitrofuran, antibiotics, pesticide residues and heavy metals (Hg, Cd, As, Pb).

Scope of Proposal

The proposal covers the following laboratory services:

Wellington Laboratory

- Chloramphenical in honey by LC-MS/MS
- Nitrofuran in honey by LC-MS/MS
- Antibiotics in honey by plate bioassay
- Pesticide residues in honey by GC-MS

Auckland Laboratory

• Heavy metals (Hg, Cd, As, Pb)

AsureQuality has a comprehensive range of food chemistry, microbiology, contaminant and residue testing services available. We also have a skilled Food Forensics team which is able to assist with determination of non-routine contamination of foods. AsureQuality would be pleased to assist in these areas if they are of interest to AsureQuality Limited – Hamilton Field Services and welcome your enquiry.

Proposal Detail

Test specifications and turnaround times (TAT) are in calendar days from day of receipt at the laboratory and are identified in the attached appendices.

Testing will be provided according to AsureQuality's Standard Terms and Conditions of Business unless otherwise agreed. These can be viewed at our website http://www.asurequality.com/asurequality-global-experts-in-food-safety-and-quality/asurequality-ltd-standard-terms-of-business.cfm

Our methods are suitable for most sample types. Where samples are outside our scope of testing, we will contact you if we encounter any issues with the testing. Please ensure that your sample description includes the type of sample so the correct method can be applied.





Pricing

The proposed prices are on a per sample basis excluding GST, any other local taxes and any associated charges that may apply.

Test Description	Analysis Code	Price per sample (NZD)
Chloramphenicol in honey by LC-MS/MS	ACA13	\$285.00
Nitrofurans in honey by LC-MS/MS	ANF05	\$365.00
Antibiotics in honey by plate bioassay	AAB04	\$190.00
Pesticide residues in honey by GC-MS	FHM-01	\$230.00
Heavy metals Hg Cd As Pb	T000-00 T1600-97 T1500-97 T1400-97 T1700-97	\$93.07

Associated Costs	Price
Courier charges	At cost to AsureQuality Limited – Hamilton Field Services
Quarantine and inspection fee	NZD 50 .00 per shipment
Urgency Surcharges * Half quoted TAT Quarter or less quoted TAT	Additional 50% of the total cost Additional 100% of the total cost

* CONTACT LAB TO CONFRIM AVAILABLITY OF URGENT TURN AROUND TIMES PRIOR TO SUBMITTING SAMPLES.

Reporting

Reports will be provided electronically by email. Amended reports where these are altered at your request will be provided by email. There will be a charge of \$25.00 ex GST per request.

Hard copies of reports and invoices can be provided on request. There will be a charge of \$50.00 ex GST per request.

<u>Sample Disposal</u> Samples will be disposed of **8** weeks after the sample has been reported.

Turnaround Time

Test turnaround times are in calendar days and are from day of receipt at the laboratory. Turnaround times quoted apply to the tests and sample volumes specified in this quotation only. Any variation to sample volumes or test types may impact the turnaround time that can be delivered and should be negotiated with the laboratory prior to submission.



Logistics

Samples can be submitted to AsureQuality's Wellington Laboratory on acceptance of this proposal. All documentation required to send samples to AsureQuality can be found on the web page below. http://www.asurequality.com/submitting-food-and-environmental-samples-for-laboratory-testing.cfm

Samples should be sent to:

AsureQuality Limited Wellington Laboratory 1C Quadrant Drive Waiwhetu Lower Hutt 5040 NEW ZEALAND

Attn: Sample Reception

To allow us to track the transit of the samples, please notify us of the airway bill number or courier ticket number by e-mail on <u>WgtnTracking@asurequality.com</u> for international customers once you have contacted the chosen courier service and the samples have been picked up.

Acceptance of offer

Please accept this offer within 30 days by sending an email, or mail a completed copy of the Proposal Acceptance accompanying this proposal. Submission of samples to the laboratory will be deemed as acceptance of this proposal and AsureQuality Standard Terms of Business unless agreed otherwise.

Once the proposal has been accepted pricing will be valid until 24 Oct 2015.

Confidentiality

We make this offer on the basis that it will remain confidential in every respect and will not be disclosed to any other party without AsureQuality's prior written approval.

Yours sincerely

Robitar

Lorna Rolston Technical Customer Champion AsureQuality Ltd Phone: +6445708364 Mobile: +6421813465 Email: cswellington@asurequality.com



Appendices

Appendix I: Proposal Acceptance

Appendix II: Sample Submission Form

Appendix III: Method Information



Proposal Acceptance

Acceptance of Proposal

AsureQuality Limited – Hamilton Field Services accepts the proposal of AsureQuality to provide Laboratory Services as outlined in the proposal document dated 24 October 2014.

The terms and conditions laid out in this proposal have been read and accepted.

AsureQuality Limited – Hamilton Field Services acknowledges that on acceptance of this proposal that they will be invoiced for the services provided.

Once the proposal has been accepted pricing will be valid until 24 Oct 2015.

Signed on behalf of AsureQuality Limited - Hamilton Field Services:

Quote ID: 3411 Wellington

Please send the signed proposal acceptance by mail, fax or email.

- Mail: AsureQuality Limited Wellington Laboratory (Attention Customer Services)
 1C Quadrant Drive, Waiwhetu, PO Box 31242, Lower Hutt 5040, New Zealand
- Fax: +64 4 570 8176
- Email: cswellington@asurequality.com

	SAMPLE	PLE SUBMIS	SION FC	SUBMISSION FORM AsureQuality	Asure(Quality
TO:		FROM:				
AsureQuality Wellington Laboratory 1C Quadrant Drive Waiwhetu	Laboratory	Customer Name/Address:	l	Name of Submitter:	Date/Time Despatched:	patched:
Lower Hutt NEW ZEALAND ATT Tel: 64 4 570 8800 Fax: 64 4 570 8176	ATTENTION:		Signa	Signature of Submitter:		
Page of (If more than one submission form used)	m used)	Quote Number: 3411			Date Required By:	By:
AQ Ref: (AsureQuality use only)	(4)	Tel:	Fax:		E-mail:	
Report Results To: (if different from above)			Send Invoice To:		Customer Ref/Order No:	
E-mail:	Fax:	Address:			Quarantine Sample	NZ Drinking Water
Customer ID	Sample Description	scription	Total Number of Components (<i>if applicable</i>)	Testing Requirements	rements	AQ Ref: (AsureQuality use only)
Comments:						
Received By:	Receipt Date/Time:	Courier Number:				

Page 1 of 1 QA Controlled Document

Issue Date: July 2010

Method Information

Amphenicols in Honey by LC-MS/MS (ACA13)

	Honey
AQ Analysis Code	ACA13
Sample Size	100 g
Turnaround Time (calendar days)	14
Accreditation Status	IANZ Accredited
Method	Sample is extracted and purified using liquid-liquid extraction. Measurement is performed using liquid chromatography tandem mass spectrometry.
Units	mg/kg as received
Reporting Limits ¹	LOR
chloramphenicol	0.00030

Nitrofuran Metabolites in Food by LC-MS/MS – (ANF05)

	Food
AQ Analysis Code	ANF05
Sample Size	100 g
Turnaround Time (calendar days)	14
Accreditation Status	IANZ Accredited
Method	The samples are hydrolysed and derivatised before purification by liquid-liquid phase extraction. Measurement is performed using liquid chromatography tandem mass spectrometry.
Units	mg/kg as received
Reporting Limits ¹	LOR
1-aminohydantoin (AHD) (nitrofurantoin)	0.00040
semicarbazide (SEM) (nitrofurazone)	0.00041
3-amino-2-oxazolidone (AOZ) (furazolidone)	0.000072
5-(morpholino-methyl)-3-amino-1,3- oxazolidin-2-one (AMOZ) (furaltadone)	0.000077

¹ Specific compounds reportable and LORs for any screen can be sample matrix dependant.

Antibiotic Screen by Plate Bioassay - (AAB04) Honey

		Honey						
AQ Analysis Code		AAB04						
Sample Size		100 g						
Turnaround Time (calenda	ar days)	14						
Accreditation Status		IANZ Accredited						
Method		The sample is extracted and purified by solid phase extraction (SPE) before concentration and measurement by microbial inhibition.						
Units		mg/kg as received						
Reporting Limits ²		LOR						
Analysis Type		Qualitative ³						
	dihydrostreptomycin	0.040						
Aminoglycosides	kanamycin	0.60						
	streptomycin	0.030						
	amoxicillin	0.0050						
	ampicillin	0.0050						
	cefuroxime	0.040						
	cephacetrile	0.060						
Beta Lactams,	cephalexin	0.030						
Cephalosporins and	cephalonium	0.020						
Lincosamides	cephapirin	0.0050						
	cloxacillin	0.020						
	benzyl g penicillin	0.0040						
	lincomycin	0.040						
	nafcillin	0.010						
	erythromycin	0.030						
	oleandomycin	0.070						
Macrolides	spiramycin	0.20						
	tilmicosin	0.15						
	tylosin	0.080						
	chlortetracycline	0.0080						
Tetracyclines	doxycycline	0.030						
rendeyennes	oxytetracycline	0.030						
	tetracycline	0.030						

² Specific compounds reportable and LORs for any screen can be sample matrix dependant. ³ The only result of qualitative analysis will be given as "Presumptive Positive" or "Negative"

	Honey
AQ Analysis Code	FHM-01
Sample Size	100 g
Turnaround Time (calendar days)	10
Accreditation Status	IANZ Accredited
Method	In-house by GC-MS
Units	mg/kg
Reporting Limits ⁴	LOR
Acetamiprid	0.010
Acetamiprid-N-desmethyl	0.010
Aldrin	0.010
Aroclors 1254	0.020
Aroclor 1260	0.020
BHC-alpha	0.020
BHC-beta	0.020
BHC-delta	0.010
Bifenthrin	0.010
Bioresmethrin	0.020
Carbaryl	0.020
Chlordane-cis	0.010
Chlordane-trans	0.010
Chlorfenapyr	0.020
Chlorfenvinphos	0.010
Chlorpyrifos	0.020
Chlorpvrifos-methvl	0.020

⁴ Specific compounds reportable and LORs for any screen can be sample matrix dependant.

HM-01	Honey	FHM-01	0.010	0.020	0.010	0.010	0.020	0.010	0.010	0.020	0.020	0.020	0.020	0.020	0.010	0.050	0.010	0.010	0.020	0.010	0.010	0.010	0.010	0.020	0.020	0.010	
GC-MS, and LC-MS/MS - FHM-01		AQ Analysis Code	Clothianidi	Coumaphos	Coumaphos oxon	Cyfluthrin	Cyhalothrin	Cypermethrin	Cyproconazole	DDD-4,4'	DDE-4,4'	DDT-2,4'	DDT-4,4'	Deltamethrin	Diazinon	Dichlorvos	Dicofol-2,4' (screened only)	Dicofol-4,4'	Dieldrin	Dimethoate	N-(2,4-dimethylphenyl)-N'- methylformamidine (DMPMF)	N-(2,4- dimethylphenyl)formamide	Endosulfan sulfate	Endosulfan-alpha	Endosulfan-bet	Endrin	

	Honev
40 Analvsis Code	EHM-01
AG Allalysis Coue	
Ethion	0.020
Ethofumesate	0.050
Famphur	0.020
Fenitrothion	0.010
Fenthion	0.020
Fenthion oxon (screened only)	0.050
Fenthion oxon sulfone (screened only)	0.050
Fenthion oxon sulfoxide (screened only)	0.050
Fenthion-sulfone	0.050
Fenthion-sulfoxide	0.020
Fenvalerate	0.020
Flumethrin	0.0050
Flutriafol	0.010
tau-Fluvalinate	0.010
HCB	0.020
Heptachlor	0.010
Heptachlor-endo-epoxide	0.020
Heptachlor-exo-epoxide	0.010
Imidacloprid	0.010
Imidacloprid olefin	0.010
5-Hydroxy Imidacloprid	0.010
Indoxacarb	0.020
Lindane	0.020
Malathion	0.010
Metolachlor	0.010
Methidathion	0.010

Pesticide Residues in Honey by GC-ECD, GC-MS, and LC-MS/MS - FHM-01

	Honey
AQ Analysis Code	FHM-01
Methoxychlor	0.020
Methylpentachlorophenyl sulphide	0.020
Mirex	0.050
Oxychlordane (screened only)	0.010
Omethoate	0.010
Parathion-methyl	0.010
Pentachloroaniline	0.010
Permethrin	0.010
Phosmet	0.020
Phosmet oxon (screened only)	0.020
Pirimiphos-methyl	0.010
Procymidone	0.010
Propachlor	0.010
Propiconazole	0.010
Prothiofos	0.010
Quintozene	0.010
Temephos	0.020
Temephos sulfoxide (screened only)	0.10
Thiacloprid	0.010
Thiamethoxam	0.010

Global experts in food safety and quality



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