



Annex 4: Review Exercise Summary Report

Working Group for the development of a framework for interrogation of honey
authenticity databases (IHAD WG)

IHAD Appendices Review Exercise

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Abstract

Many aspects of food authenticity are subject to analytical investigation based on databases of information from authentic specimens. This is particularly the case with honey. In order to establish the suitability of databases for their purpose the IHAD WG has developed an extensive draft framework for the interrogation of honey authenticity databases. The draft framework includes three technical appendices listing a total of 149 database interrogation questions. A review exercise has been carried with the cooperation of a database owner. This was to gauge the feasibility of applying the framework and its appended questions. A breakpoint was incorporated into the IHAD WG workplan pending the completion of the review exercise. The review consisted of a series of meetings with a database holder during which the appendices questions were assessed. The majority of questions were found to be sensible and capable of being answered relatively easily. A small percentage of the questions required more explanation properly to answer. This is being addressed by the IHAD WG secretary and chair. Thus, the breakpoint has not been triggered and work on the framework is able to continue.

Introduction



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Many aspects of food authenticity are subject to analytical investigation based on databases of information from authentic specimens. This is particularly the case with honey. In order to establish the suitability of databases for their purpose the IHAD WG has developed an extensive draft framework for the interrogation of honey authenticity databases. The draft framework includes three technical appendices listing a total of 149 database interrogation questions. In response to a suggestion that the framework and appendices should be tested against the ability of a database holder to understand and respond to the questions a review exercise was proposed by the IHAD Chair (M Walker, MW) and Secretary D Hoyland, DH). This would afford the opportunity for the proposed questions to be reviewed in more detail by a database holder than had been possible during the WG meetings. Although the fundamentals and applicability of the framework document itself would not be challenged the review exercise was considered suitable within the constraints of time and funding.

A questionnaire (Annex 1) was devised to test only the feasibility of answering the questions posed rather than the collection of actual responses. Approval for this was sought from funders on 30th May 2024 and granted on 18th June 2024 following which the WG membership were canvassed for volunteers. Two organisations expressed interest and one committed to participation.

Accordingly, the three appendices and questionnaire were sent to one organisation holding an NMR honey database. Additional columns provided space to respond to the questionnaire and to add comments if required. The appendices were returned with comments and we are grateful to the database holder for the time and effort devoted to this.

The exercise was conducted between 15th July and 12 August 2024 and involved two virtual meetings between the database holder and the chair and secretary of the IHAD WG.

Findings

The findings of the review were as follows.

Appendix 1:

Quality Assurance of the Database, Reporting and Reference Data Set

This appendix contains 20 questions (4 preliminary questions and 16 'subject' questions). Of these all 20 were reported as making sense, 18 were easy to answer, 4 provoked discussions between the database holder and MW and DH; of these 2 would require further explanation to be answered by a database holder. The comments and actions are shown in Table 1.



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Table 1: Comments and actions on Appendix 1

Question	Comment	Action
Which year was the database first used for commercial authenticity/adulteration assessment?	While the question made sense and is easy to answer the responses may vary, answers may not be as straightforward as would appear	Include in guidance to the Appendices
Is the scope of the database defined? If so, please state in the comments	The question made sense but is not easy to answer as written	The questions should refer to the paragraph in the Framework Document that discusses 'scope of the database'
Has the scope of the database changed since it was first introduced commercially? If so, please provide details of how and why.	The question made sense but is not easy to answer as written	
In the event that only a percentage of the reference samples in the database are used in the interpretation(s) how do you gauge that as an appropriate number of reference samples for the assessment? For example, if the database contained a total of 1000 samples but only 12 were used in the assessment would this be deemed 'appropriate'? Please provide brief details on how this decision is justified.	While the question makes sense and is easy to answer the responses would be heavily dependent on the information provided with the sample, e.g. if no information was submitted with the sample all the database might be used. If submitted as a specific geographic or botanical origin a smaller portion of the database might be used. The lab should discuss with client any limitations in the number of applicable reference samples in the database.	Include in guidance to the Appendices

Appendix 2:

Reference Sample Traceability Metadata

This Appendix has five sets of questions containing 20, 22, 16, 16 and 15 questions respectively, a total of 89 questions. The overall findings are shown in Table 2.



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Table 2: Overall findings for Appendix 2

Question Set	Percentage (and number) of Questions that made sense	Percentage (and number) of Questions that were easy to answer	Percentage (and number) of questions which had comments
Set 1	100% (20/20)	100% (20/20)	30% (6/20)
Set 2	100% (22/22)	84.6% (19/22)	13.64% (3/22)
Set 3	100% (16/16)	93.7% (15/16)	18.7% (3/16)
Set 4	100% (15/15)	100% (15/15)	6.3% (1/15)
Set 5	100% (15/15)	100% (15/15)	6.7% (1/15)
Totals	100% (88/88)	95.5% (84/88)	15.7% (14/88)

Table 3: Comments and actions on Appendix 2

Question	Comment	Action
General comment	It should be explained that all the questions in this appendix are based on the sampling protocol ¹ .	Include in guidance to the Appendices
Set 1 REFERENCE SAMPLES INTEGRITY & CHAIN OF CUSTODY		
Number of reference samples used the interpretation	Will depend on data provided with sample	Include in guidance to the Appendices
Are sampling details unknown or performed by untrained personnel/no sampling protocol?	Rephrase the question for ease of understanding	Emphasises need for guidance to the appendices - e.g. block chain etc
Is the sampling activity of a reference sample captured by an independent audit / certification mechanism?	Requires some clarification	Include in guidance to the Appendices
Are there only partial records for sampling activity of a reference sample? i.e. where only some of the required metadata, according to the scope of the database (as defined by the database owner) is available.	Partial is probably subjective in this context	Include in guidance to the Appendices
Are there full records of chain of custody for a reference sample from point of sampling to receipt by the database owner/laboratory?	Typo (receipt) and do you need to ask which standards are applied to the CoC	Correct typo and include in guidance to the Appendices, e.g. full forensic or more routine
Are there only partial records of chain of custody for a reference sample from point	Typo (receipt) and See comments above in relation to standards and use of 'partial'	Correct typo and include in guidance to the Appendices

¹ Protocol for the Collection of Honey Reference Samples for the Construction of Authenticity Databases,

https://assets.publishing.service.gov.uk/media/66e816f210f8726dc23aa194/ANNEX_Forms_28_8_24_Final_honey_protocol_with_online_forms.pdf



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of sampling to receipt by the database owner/laboratory?		
Set 2 BEEKEEPER / APIARY DERIVED METADATA		
General comment	Whilst most of the questions can be answered, the answers may not be satisfactory and would require others in the supply chain to be contacted	Include in guidance to the Appendices. Inform the d/b holder the relevant personnel and records needed to answer the questions should be to hand.
General comment	n.b. verification of answers may be needed (in a formal forensic investigation), e.g. by an actual audit of an agreed proportion of the samples, root n or cubed root n - this should go into the framework doc	Include in Framework Document and in guidance to the Appendices. Note an overarching certified quality obviate or reduce the need for audit.
Does the database contain reference samples sourced directly from beehives, beekeepers ex hive or ex. apiary bulked honey batches.	Don't understand. Isn't all honey ex hive?	Include in guidance to the Appendices
If 2.1a [above question] is 'yes' then is beekeeper / apiary metadata (such as - see below) available for reference samples sourced directly from beekeepers/apiaries?	See above comment	Include in guidance to the Appendices
Set 3 POST 'FACTORY PROCESSING' DERIVED METADATA		
General comment	All the questions in this section could be answered, but they are not aimed at the database holders and are more about the quality control of honey production. Is that really in scope for this exercise?	Add into comment boxes option of yes with (a) some (b) a lot of effort
General comment (in discussions)	A lot of 'no' answers doesn't mean the data doesn't exist - just that the lab doesn't have access to the info, and it would be difficult to get the info	Include in guidance to the Appendices.
If [the database contains reference samples derived from 'factory' or 'processing facility', blending / homogenisation/processing facilities then is 'factory processing' metadata (such as - see below) available for	Don't understand the question - check if % question is in the appendix and explain what post-factory processing means	Include in guidance to the Appendices



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reference samples sourced post 'factory processing'?		
Does the database contain samples sourced further down the honey supply chain? E.g. sampled from bulk honey on arrival at port in importing country or sampled as a retail product.	Is this a repeat of a previous question - see above makes more sense with an explanation of the supply chain and at what point the question applies to	Clarify and include in guidance to the Appendices
Set 4: 'POST ARRIVAL IN IMPORTING COUNTRY' METADATA		
General comment	See comment on set 3 questions. This is normal honey QA and would be expected, so all questions should be answerable. There is a problem with the sale of the honey if not. You might usefully ask if the honey used as reference samples is subject to industry standards. Similarly, you might ask if reference honey is sourced without the use of quality systems e.g. from beekeepers or a farm shop for example. Another question might be around whether the honey reference samples are representative of honey entering the food chain and if so at which point. Industrial use in cooked products (e.g. Baker's honey), so called 'Raw' honey extracted from the hive and sold with little processing. 'normal' honey which will likely have been processed and blended.	Include in guidance to the Appendices and add question
General comment (in discussions)	At the start of appendix 2 perhaps ask an open question about quality standards and how recorded with a narrative answer. Caveat is that different subsets of reference samples may be to different quality systems. Take care with phrasing to avoid a simple 'yes' answer	Include in guidance to the Appendices and add question



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Set 5: METADATA FOR RETAIL UNITS SAMPLED AT FILLING OR POST PACKING		
Information from Brand Owner (obtained from the honey products' packer): For the reference samples used in the interpretation:-	The 4 questions in this section of the set are for honey packers	Include in guidance to the Appendices

Appendix 3

REFERENCE SAMPLE ANALYTICAL METADATA

This appendix contains 41 questions all of which were reported as making sense, easy to answer and none of the questions provoked discussions between the database holder and MW and DH

Summary and recommendations

In total the three appendices contain 150 questions.

- Of the questions posed in the three appendices 100% (150/150) were deemed sensible as they stood although some required more explanation and some were not straightforward to answer; these, plus some other questions, provoked discussion.
- Of the 150 questions 96% (144/150) were capable of being answered relatively easily.
- The remaining four percent (6/150) required more explanation properly to answer. This will be actioned by the secretary and chair of the WG.
- In total for 18 questions (12%) comments were made. These were either noted in the returned appendices after consideration by the database holder and / or in discussions at the review meeting. Some of the questions were deemed to be impossible to answer by a laboratory alone and / or would require varying degrees of additional work by the database holder to answer. The comments will be acted upon by the secretary and chair of the WG.
- Detailed comments and actions are shown in Tables 1 and 3 above.
- It is clear that the appendices contain relevant and applicable questions.
- The database holder who reviewed the appendices is a member of the WG and an experienced honey analyst. It was evident that, even so, more explanation is required about the appendices, particularly for non-honey experts. An overarching guidance document to the appendices is required.

V4, 03 October 2024 Michael Walker & David Hoyland

Annex 1: The questionnaire

Review of the questions in appendices 1, 2 and 3.

Please look at each of the questions in the appendices and tell us, for each question:

1. Does the question make sense? Yes / No, if Yes go to 2 if No go to 7
2. I could answer it easily yes/no, if yes stop here, if no go to 3
3. I could answer it with some preparation yes/no, if yes stop here, if no go to 4



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4. I could answer it with a great deal of preparation yes/no, if yes stop here, if no go to 5
5. An answer would require an inordinate amount of time and resource which it would be unreasonable to ask of my organisation, yes/no , if yes go to 6.
6. Why – narrative comment
7. The question does not make sense because I do not understand what I am being asked yes/no, if yes go to 8, if no go to 9
8. With the explanation given (DH/MW to give explanation) I can answer the question yes/no. If yes go to 2, if no stop here and go on to the next question in the appendix.
9. Please explain why the question does not make sense for your database. (narrative answer).
10. Repeat with next question until we have gone through all the questions.