QA Workshop

Workshop 2: Solution

Scenario: The determination of pesticides

An apple grower is seeking to have some apples analysed to determine the levels of pesticide residues present. The analysis is required to ensure that residue levels do not exceed the current maximum permitted residue levels defined in legislation.

When choosing a laboratory to undertake the analysis, the grower will need assurance that the laboratory is capable of carrying out the analysis and producing results which meet the requirements of current legislation on pesticide analysis. The grower will require, from the laboratory, more than a declaration, "Yes of course we can do this work".

This solution is intended as an illustration of the things you might discuss, rather than a definitive view.

The laboratory

Find out by talking to the client the background to the problem. How large is the orchard and how many apples need to be analysed, do they have one variety or a mixture? Which part of the apple requires testing? What pesticides have been used, frequency and quantity. What turn round time is required? Is there any historical data on the use of the land and/or use of pesticides in the past? What is grown on adjacent land (if appropriate)?

Legislation is involved, is this for a particular market? Does the legislation require a particular method to be used?

Is the client going to take the samples or are you required to take them? If the client or somebody else is taking the samples do they know what they are doing or is your advice required? Remember the analysis can only be useful if the sampling is appropriate.

Other sample related issues

- How many samples?
- Sample size?
- Associated hazards
- Special transport and storage requirements?
- Containers?
- Stability?
- Other things present in the sample that could interfere?

Does the client want to establish that the concentration of pesticide does not exceed a particular level in any part of the apple or is there a wish to establish a concentration profile across the apple?

What are the anticipated concentration levels?

Does the client have a preferred method? They might want to compare this work with other work done by the same method. Then again their preference may not be entirely suitable. If there is reason to suppose this to be the case then you should tell the client as soon as possible.

If there is no suitable method available is the client prepared to fund development? Does the number of samples justify this?

Other issues

Who is the point of contact for the apple grower? The laboratory should have a contact name so that they can make sure they are talking to the right person if they need to discuss any issues relating to the work.

Client's time-scale and budgetary constraints (both of these might be totally unrealistic with respect to the work they want done, so it is important to find this out early on!).

Is this a one-off study or is there likely to be ongoing testing in the future?

What sort of report is required? Are there forensic implications that require particular measures (such as a need to demonstrate the chain-of-custody of the samples)?

Does the method need to be accredited? If so is it in the laboratory's scope?

Does the client want the laboratory to provide an interpretation of the results or just supply the results?

What level of quality control should be applied to the data?

Client may wish to audit the laboratory. They may wish to see training records. If they are a knowledgeable client they may wish to know if the laboratory participates in PT schemes and they may want to look at the past performance.

What is the extent of the client's requirement for liability insurance/ professional indemnity?

The apple grower

As the apple grower, you need to be convinced that the laboratory is capable of analysing the samples reliably, on-time and within your budget. Below are some of the questions you might ask to help establish whether this is likely to be the case.

Is the laboratory familiar with current legislation controlling the levels of pesticide residues in foodstuffs?

Is the laboratory accredited for this particular type of analysis? Accreditation is awarded for particular tests on particular analytes and matrices. You need to be sure that the laboratory has accreditation for the type of samples you will be sending and for the analytes of interest.

How long has the laboratory been carrying out the analysis of pesticides – do they have an established track record in this area?

Can the laboratory demonstrate a performance history for this type of analysis, e.g. through results from participation in proficiency testing schemes?

Can the laboratory demonstrate that the analytical method they propose to use is properly validated and that their staff are trained and competent?

You may want the laboratory to be responsible for the sampling, if so, are they accredited for sampling? If they are unable to carry out the sampling themselves, can they advise on a suitable sampling plan?

It might be a good idea for you to visit the laboratory to view their operations – are they happy for you to do this?

You may wish to send some samples to the laboratory to assess their performance prior to placing the work with them. Would they be willing to analyse the samples and if so, would they charge for it.

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How does the laboratory store samples prior to analysis?

How does the laboratory track samples from receipt to reporting the result? How do they ensure that the correct result is assigned to the correct sample?

Can the laboratory meet your required turnaround times? What contingency do they have in place in case of equipment failure or staff illness?

Who is the contact point at the laboratory?

How much will they charge for the work – is this within your budget?