Safefood-Online
Identify risks and increase opportunities

Manual Food Fraud Tool (in Safefood-Online)

Instructions how to use and evaluate the data

1 Food Fraud (a significant food safety risk)

Food fraud is the deliberate placing on the market of adulterated food with the aim of achieving an economic advantage through consumer deception. They are also often referred to as "Economically motivated adulteration" (EMA). In a broader sense, this can also include fraud with food contact materials

There is currently no legal definition of food fraud. The GFSI (Global Food Safety Initiative) standard describes food fraud as:
"*a collective term encompassing the deliberate and intentional substitution, addition, tampering or misrepresentation of food, food ingredients or food packaging, labelling, product information or false or misleading statements made about a product for economic gain that could impact consumer health*".
The FDA (U.S. Food Drug Administration) describes EMA as:
"*fraudulent, intentional substitution or addition of a substance in a product for the purpose of increasing the apparent value of the product or reducing the cost of its production, i.e., for economic gain*".

Food fraud therefore represents a significant food safety risk that must be managed, mitigated or eliminated.

In recent years there have been a number of incidents involving i.e. olive oil, fish, organic products, milk, cereals, honey, maple syrup, coffee, tea and spices. The "horse meat scandal" is not one of the top ten incidents because - in contrast to public/press perception - it was of little economic relevance. The German Federal Ministry of Justice and Consumer Protection is currently investigating how an early warning system can be developed on a scientific basis that identifies incentives to deceive consumers. With such a system, so far not existing, authorities would be able to proactively prevent suspected deceptions as well as the health risks associated with deception in food production. The systematic observation of product volumes, price changes and goods flows can provide the basis for this. The internet site "www.lebensmittelklarheit.de" could be a first approach for this.

1.1 Requirements from existing GFSI-standards

Requirements from GFSI:

Here aspects must be taken into account which go beyond the traditional view of the production of safe food. In the Guidance Document "Tackling Food Fraud Through Food Safety Management Systems" (https://www.mygfsi.com/files/Technical_Documents/201805-food-fraud-technical-document-final.pdfd), the GFSI (Global Food Safety Initiative) published requirements on food fraud.

The GFSI recommends two main steps:

(1) Vulnerability assessment
The standard requires the organization to have a documented vulnerability assessment for food fraud to identify potential vulnerabilities and to prioritize measures to address food fraud vulnerabilities.

(2) Food Fraud Mitigation plan (Control plan):

The standard requires the organization to have a documented plan that defines the control measures the organization has implemented to mitigate public health risks associated with identified food fraud vulnerabilities.

This food fraud mitigation plan must be supported by the food safety management system of the organization.

Questions deriving from these requirements:

1) With a risk assessment it is checked how vulnerable is the production of the food to potential fraudulent measures.

2) Which control measures need to be implemented to mitigate this risk?

Requirements from IFS Food, Version 6.1

Criterion 4.4.5 (purchase):

The purchased products shall be checked in accordance with the existing specifications and their authenticity, based on hazard analysis and assessment of associated risks. The schedule of these checks shall, as a minimum, take into account the following criteria:
- product requirements
- supplier status (according to its assessment) and
- impact of the purchased products on the finished product.

The origin shall be additionally checked, if mentioned in the specification.

Qestions directly deriving from this requirement:

- Is there a test plan and how is the test plan updated?
- How are criteria regarding authenticity taken into account?

Criterion 5.6.8 (product analysis):

Based on hazard analysis, assessment of associated risks and on any internal or external information on product risks which may have an impact on food safety and/or quality (incl. adulteration and fraud), the company shall update its control plan and/or take any appropriate measure to control impact on finished products.

Linked to this requirement there are additional questions and references as follows:

If an alarm system informs that a raw material from a certain country regularly contains a hazardous substance and if the company buys this raw material, the company must increase the frequency of analyses of this raw material in order to improve monitoring. However, if the analysis always produces good results and if the raw material is known to be low risk, the company may decide to reduce the frequency of analysis.

Criterion 4.21.1 (Food Fraud)
A documented food fraud vulnerability assessment shall be undertaken on all raw materials, ingredients, packaging and outsourced processes, to determine the risk of fraudulent activity in relation to substitution, mislabelling, adulteration or counterfeiting. The criteria considered within the vulnerability assessment shall be defined.

Criterion 4.21.2 (Food Fraud)
A documented food fraud mitigation plan shall be developed, with reference to the vulnerability assessment, and implemented to control any identified risk. The methods of control and monitoring shall be defined and implemented.

Criterion 4.21.3 (Food Fraud)
In the event of increased risk, food fraud vulnerability assessment shall be reviewed.
Otherwise all vulnerability assessments shall be reviewed at least annually.
Control and monitoring requirements of the food fraud mitigation plan shall be reviewed and amended when applicable.

Requirements from BRC Food, Version 8

Criterion 5.4.1
The company shall have processes in place to access information on historical and developing threats to the supply chain which may present a risk of adulteration or substitution of raw materials (i.e. fraudulent raw materials). Such information may come from, for example:
• trade associations
• government sources
• private resource centres.

Criterion 5.4.2
A documented vulnerability assessment shall be carried out on all food raw materials or groups of raw materials to assess the potential risk of adulteration or substitution. This shall take into account:
• historical evidence of substitution or adulteration
• economic factors which may make adulteration or substitution more attractive
• ease of access to raw materials through the supply chain
• sophistication of routine testing to identify adulterants
• the nature of the raw material.
The output from this assessment shall be a documented vulnerability assessment plan. This plan shall be kept under review to reflect changing economic circumstances and market intelligence which may alter the potential risks. It shall be formally reviewed annually.

Criterion 5.4.3
Where raw materials are identified as being at particular risk of adulteration or substitution, the vulnerability assessment plan shall include appropriate assurance and/or testing processes to mitigate the identified risks.
Criterion 5.4.4
Where products are labelled or claims are made on finished packs which are dependent on the status of a raw material, the status of each batch of the raw material shall be verified. These claims include:

• specific provenance or origin
• breed/varietal claims
• assured status (e.g. Global G.A.P.)
• genetically modified organism (GMO) status
• identity preserved
• named specific trademarked ingredients.

The facility shall maintain purchasing records, traceability of raw material usage and final product packing records to substantiate claims. The site shall undertake documented mass balance tests at a frequency to meet the particular scheme requirements or at least every 6 months in the absence of a scheme-specific requirement.

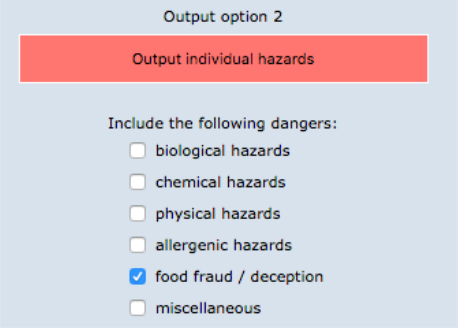
Criterion 5.4.5
Where claims are made about the methods of production (e.g. organic, halal, kosher) the site shall maintain the necessary certification status in order to make such a claim.

Criterion 5.4.6
The process flow for the production of products where claims are made shall be documented and potential areas for contamination or loss of identity identified. Appropriate controls shall be established to ensure the integrity of the product claims.

Conclusion:

There are of course many options for carrying out a risk assessment and which control measures must be implemented in the company in order to mitigate this risk. With the database Safefood-Online this is possible in an easy way. Either the analysis can be done within the HACCP analysis or with the Food Fraud Tool developed especially for this purpose.

Remark:
With output option 2 (output with individual hazard categories) in the "HACCP Export" module, it is possible to select only "Food Fraud":



This query should not be used for Food Fraud analysis, since in this case the questions of the Food Fraud module are not taken into account. Therefore it is recommended to always use the Food Fraud module for Food Fraud Analysis.

The following notifications are included in the "Food Fraud" query:

- **Irradiation** (irradiated food)
- **GMO** (notifications concerning genetically modified organisms or foodstuffs)
- **novel food**
- **Fraud** (e.g. illegal import)
- **Colours** (illegal addition or incorrectly labelled food)
- **Composition** (e.g. admixtures in the recipe or directly to the food)
- **Labelling** (e.g. incorrect labelling or falsified health certificates)

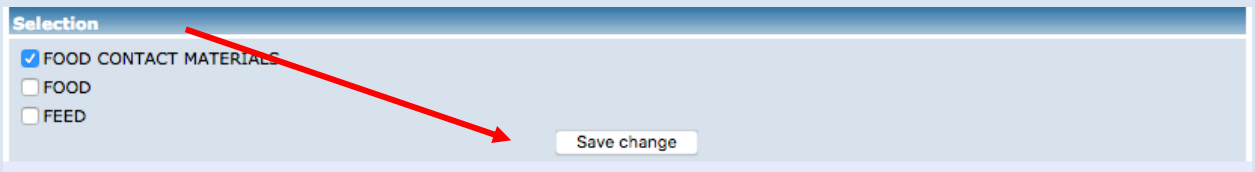
The addition of a group and the addition of articles (in Safefood Online these are foods, food contact materials and animal feed) is done according to the same principle as described in the Safefood Online manual (see the "Download" tab).

1.2 Addition of foods, food-contact-materials and animal feeds

Before adding food, food contact materials and feed, a selection must be made about which data to access:

- Food and /or
- Food contact materials and /or
- animal feed

The selection and/ or the changes are stored:



When adding articles (food, food contact materials and feed), a window opens in which all hits containing the entered term are displayed. So it is sufficient if only a part of the word is entered (i. e. in the selected example "sojal" for "soy lecithin"). In another list all further hits are shown, in which the selected term is contained in the data set, but not in the word of the article itself. In this way, further articles can also be loaded into the export. The hits achieved can be added individually by setting a check mark.
When the selection of articles is completed the Food Fraud Analysis can be started.

2 Vulnerability assessment Food Fraud

2.1 Vulnerability assessment example hazelnuts

Start Food Fraud Analysis

2.1.1 Questions regarding likelihood of occurrence: example hazelnuts

Likelihood of occurence hazelnuts

Question A 1/4

Any known incidents of food fraud in the past?
Actually any concerns, e.g. current notifications or alerts?

- ○ no incident
- ○ 1-3 incidents
- ○ 4-6 incidents
- ○ 7-10 incidents
- ◉ 11 and more incidents

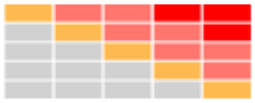
This evaluation is done directly by Safefood-Online. No changes possible.

The following known hazards can be shown when the details are displayed:

Show details

Hazards	Country of origin
composition	
magnesium phosphide [1]	Turkey [1]
adulteration / fraud	
improper health certificate(s) [8]	Turkey [8]
illegal import [1]	Turkey [1]
absence of health certificate(s) [2]	Serbia [1], Turkey [1]

Remark: In this query for "hazelnuts", the highest level in question A 1/4 already indicates the highest probability of occurrence (the highest risk). In this case, the other questions about the likelihood of occurrence have no influence. The results are later shown in the risk matrix. If, for example, 4-6 incidents were identified as a result, the following three questions can "increase" the probability of occurrence (risk increases).



Question A 2/4

How strong are the economic influences, such as price fluctuations on the market?
Data from purchase department / supplier

- ○ There are no price fluctuations.
- ○ Price fluctuations are in the expected range.
- ○ Price fluctuations more than 10% - 20% above the expected range.
- ○ Price fluctuations more than 20% - 40% above the expected range.
- ◉ Price fluctuations more than 40% above the expected range.

Question A 3/4

From which country of origin the raw material is sourced? How long (time) and how complex is the supply chain? Are manipulations possible?

Select the country of origin for the raw material::

× Azerbaijan × Georgia × Italy × Turkey

several countries can be selected, according to a worst case scenario, the worst rating is used

- ○ no risks
- ○ acceptable risks
- ○ conditionally acceptable risks
- ○ unacceptable risks
- ◉ critical risks

This evaluation is carried out by Safefood-Online using the Corruption Perceptions Index (CPI) and the Global Competitiveness Index (GCI). No change possible.

Question A 4/4

What is the market for the raw material (e.g. value of raw material / size of the market)? Is the raw material always available or what is the availability outside the harvest?

Assessment of QM / QS and purchasing

- ○ large market, raw material always available, regardless of the time of harvesting.
- ○ The market is well manageable. Raw material is not so valuable and there are many suppliers.
- ○ Procurement is possible all year round. There are rarely bottlenecks.
- ○ Raw material is bought only by dealers.
- ◉ The market is small, often intransparent and there are only few suppliers. Raw materials are very expensive.

For each question an answer must be clicked before proceeding to the step likelihood of detection:

Next step: likelihood of detection

2.1.2 Questions regarding likelihood of detection: example hazelnuts

Likelihood of detection
hazelnuts

Question E 1/4

What's the transportation route? How are the raw materials packaged?
Are there tamper-evident closures / seals?

Answer from the incoming goods inspections and corresponding notifications

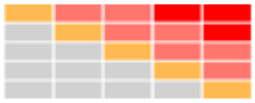
- (●) Tamper-evident closure present or not required (e.g. for whole, undamaged fruits). It is always checked for possible damage upon receipt of the goods. There are no known damages.
- ( ) Tamper-evident closure present or not required (e.g. for whole, undamaged fruits). It is always checked for possible damage upon receipt of the goods. There are 1 - 2 known damages.
- ( ) Tamper-evident closure always available and required. There are 3 - 10 incidents per year with damaged tamper-evident closures, seals or seals.
- ( ) Tamper-evident closure is missing frequently (more than 10 incidents per year) although required and mandatory.
- ( ) No tamper-evident closure available although required.

Question E 2/4

How is the quality of the raw material (unprocessed or processed, i.e. peeled, cut, crushed, ground, liquid or otherwise further processed) and how many stages are there from cultivation / extraction (farmer/ producer) to the delivery of the raw material to our company?

Is the supply chain known? The closer to the origin, the less risky.

- ( ) There are no known adulterations for the product and from an economic point of view it can be assumed that it makes little sense to adulterate the raw material.
  Since there are known incidents, this selection is not possible.
- (●) The raw material is directly purchased from the producer or trader. At least one of them is GFSI certified.
- ( ) The raw material is directly purchased from the producer who is classified as trustworthy (e.g. multi-year cooperation).
- ( ) Although the producer is known, he has never been visited and there are at least two intermediate stages to the production of the raw material that is procured.
- ( ) For the production process of the raw meterial from harvesting to the final product there is not much knowledge available, so that possible weak points cannot be recognized and evaluated.



Question E 3/4

Are there already control measures, such as supplier audits, in which topics such as adulteration, traceability, mass balance and ethical aspects are audited?

- ○ There is an annual risk-oriented audit planning. The audits are addressing issues such as adulteration and fraud (including detection of such events), traceability, mass balance and ethical aspects that are fully met by suppliers.
- ○ Risk-based supplier audits are carried out. Issues such as adulteration and fraud (including the detection of such events) and ethical aspects are not (yet) are sufficiently addressed.
- ◉ Risk-based supplier audits are carried out. Topics such as adulteration and fraud (including the detection of such events) as well as ethical aspects are not sufficiently addressed and are not fully met by the supplier.
- ○ There are supplier audits, but these audits are not systematically planned and done situational.
- ○ There are no systematic, risk-based supplier audits.

Question E 4/4

Is it easy today to detect the known or possible adulterations in routine examinations? Are there any investigations or possibilities of discovery at all? What does the test plan look like?

Assessment of QM / QA

- ○ There are no known adulterations.
  Sience there are known incidents, this selection is not possible.
- ◉ A quick test / routine examination is available to determine the possible adulteration. The method is used in our company or at the supplier's side and is part of the inspection plan with a fixed interval.
- ○ Methods with authenticity tests are available, but they are very complex and cannot be carried out in our own laboratory.
- ○ An inspection plan exists laying down the detection method(s) according to a specified interval. External laboratories are also responsible to test for authenticity.
- ○ Although there are analytical methods to detect adulterations, they can only be carried out in a few specialized laboratories. These tests are very costly and are only used when adulterations or fraud are known or reported.

Complete

After clicking on the button “Complete” the following window appears:

Information

Your data has been saved and is now ready for evaluation.

Start FOOD Fraud Analysis Excel-Export

2.1.3 Evaluation using a Excel spread sheet

After the query is done an Excel spread sheet with 4 sheets is opened:

2.1.4 Sheet 1: Food Fraud Results

The first sheet summarizes all results of the selected group. This allows you to see at any time how the respective questions were answered. The colour indicates the classification in the risk matrix.

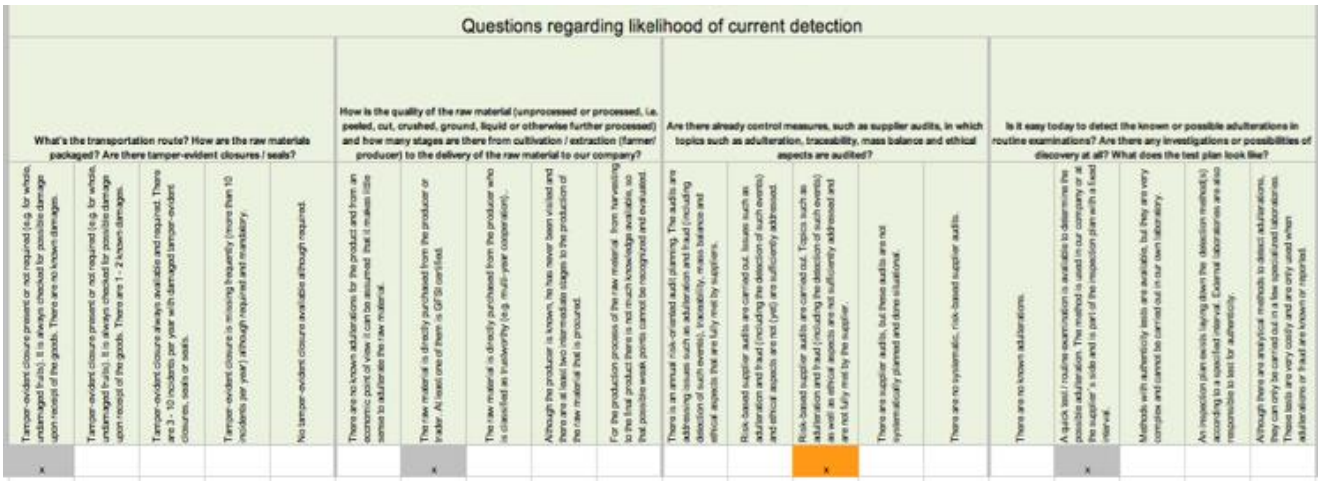
This Excel table can be extended as required, e.g. by the name of the supplier or the current price.

Food Fraud Incidents
for raw material, food-contact material, animal feed
safefood-online GmbH 21.06.2019

The data output has been limited to: 01.01.1979 - 21.06.2019
Selection: FOOD
The number of reported incidents is based on the above selection
Group: hazelnuts
Are there outsourced processes? Are packaging materials included?

Questions regarding likelihood of occurence

Name of the group	Selected article	Supplier	Any known incidents of food fraud in the past? Actually any concerns, e.g. current notifications or alerts?					How strong are the economic influences, such as price fluctuations on the market?					From which country of origin the raw material is sourced? How long (time) and how complex is the supply chain? Are manipulations possible?							What is the market for the raw material (e.g. value of raw material / size of the market)? Is the raw material always available or what is the availability outside the harvest?				
			no incident	1 - 3 incidents	4 - 6 incidents	7 - 10 incidents	11 and more incidents	There are no price fluctuations.	Price fluctuations are in the expected range.	Price fluctuations more than 10% - 20% above the expected range.	Price fluctuations more than 20% - 40% above the expected range.	Price fluctuations more than 40% above the expected range.	Country of origin (When selecting several countries, the worst rated country will be used)	Corruption Perceptions Index (CPI)	Global Competitiveness Index (GCI)	no risks	acceptable risks	conditionally acceptable risks	unacceptable risks	critical risks	large market, raw material always available, regardless of the time of harvesting.	The market is well manageable. Raw material is not so valuable and there are many suppliers.	Procurement is possible at year round. There are rarely bottlenecks.	Raw material is bought only by dealers.	The market is small, often intransparent and there are only few suppliers. Raw materials are very expensive.
hazelnuts	hazelnuts						x					x	Azerbaijan, Georgia, Italy, Turkey	31	61.60					x						x



Questions regarding likelihood of current detection

What's the transportation route? How are the raw materials packaged? Are there tamper-evident closures / seals?						How is the quality of the raw material (unprocessed or processed, i.e. peeled, cut, crushed, ground, liquid or otherwise further processed) and how many stages are there from cultivation / extraction (farmer/ producer) to the delivery of the raw material to our company?				Are there already control measures, such as supplier audits, in which topics such as adulteration, traceability, mass balance and ethical aspects are audited?					Is it easy today to detect the known or possible adulterations in routine examinations? Are there any investigations or possibilities of discovery at all? What does the test plan look like?				
Tamper-evident closure present or not required (e.g. for whole, undamaged fruits). It is always checked for possible damage upon receipt of the goods. There are no known damages.	Tamper-evident closure present or not required (e.g. for whole, undamaged fruits). It is always checked for possible damage upon receipt of the goods. There are 1 - 2 known damages.	Tamper-evident closure always available and required. There are 3 - 10 incidents per year with damaged tamper-evident closures, seals or seals.	Tamper-evident closure is missing frequently (more than 10 incidents per year) although required and mandatory.	No tamper-evident closure available although required.	There are no known adulterations for the product and from an economic point of view it can be assumed that it makes little sense to adulterate the raw material.	The raw material is directly purchased from the producer or trader. At least one of them is GFSI certified.	The raw material is directly purchased from the producer who is classified as trustworthy (e.g. multi-year cooperation).	Although the producer is known, he has never been visited and there are at least two intermediate stages to the production of the raw material that is procured.	For the production process of the raw material from harvesting to the final product there is not much knowledge available, so that possible weak points cannot be recognized and evaluated.	There is an annual risk-oriented audit planning. The audits are addressing issues such as adulteration and fraud (including detection of such events), traceability, mass balance and ethical aspects that are fully met by suppliers.	Risk-based supplier audits are carried out. Issues such as adulteration and fraud (including the detection of such events) and ethical aspects are not (yet) are sufficiently addressed.	Risk-based supplier audits are carried out. Topics such as adulteration and fraud (including the detection of such events) as well as ethical aspects are not sufficiently addressed and are not fully met by the supplier.	There are supplier audits, but these audits are not systematically planned and done situational.	There are no systematic, risk-based supplier audits.	There are no known adulterations.	A quick test / routine examination is available to determine the possible adulteration. The method is used in our company or at the supplier's side and is part of the inspection plan with a fixed interval.	Methods with authenticity tests are available, but they are very complex and cannot be carried out in our own laboratory.	An inspection plan exists laying down the detection method(s) according to a specified interval. External laboratories are also responsible to test for authenticity.	Although there are analytical methods to detect adulterations, they can only be carried out in a few specialized laboratories. These tests are very costly and are only used when adulterations or fraud are known or reported.
						x							x						x	

2.1.5 Sheet 2: Vulnerability assessment

In the second sheet, all selected articles in a risk matrix are sorted into the fields A1 to E5, depending on the risk assessment resulting from the analysis. The two evaluations of likelihood of occurrence and likelihood of detection are transferred to the matrix and entered in the corresponding field. This query tool only works if individual foods/food-contact materials and/ or animal feed are queried. For this reason, all groups are broken down into individual articles.

Regarding the classification the following rules are applied:

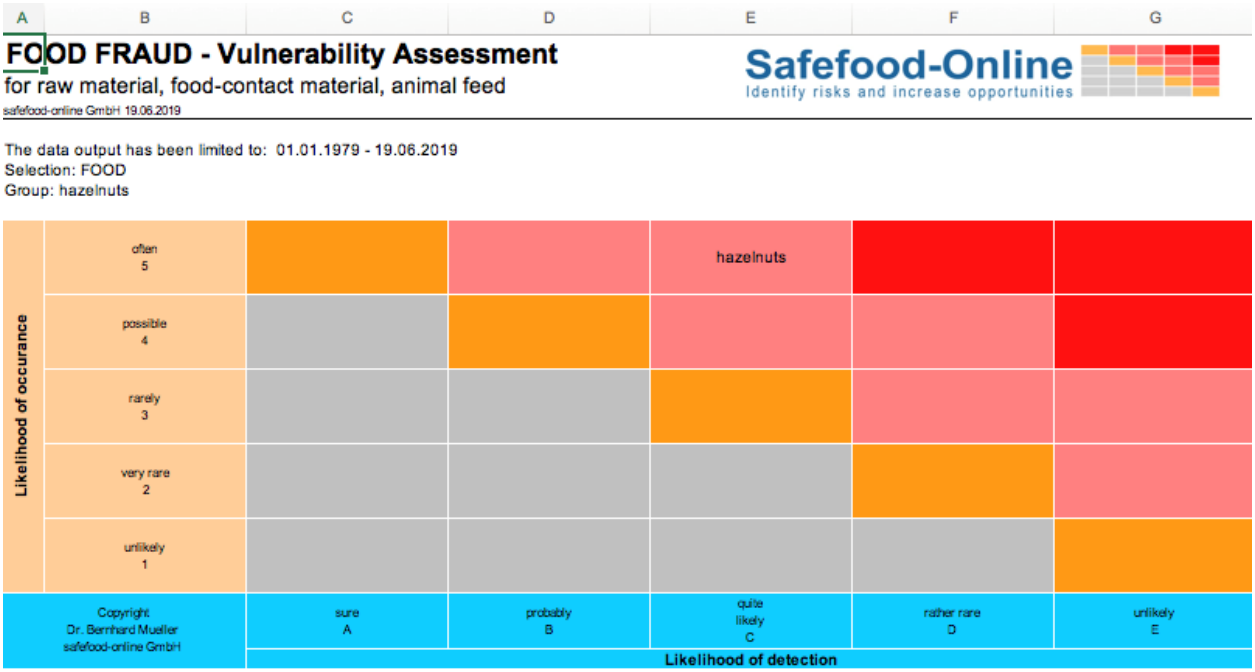
Likelihood of occurence:
field 1: unlikely
field 2: very rare
field 3: rarely
field 4: possible
field 5: often

At the end, the highest ranking of the four questions is adopted in the relevant field (1 - 5). The classification is resulting from answering all questions. The highest rating of the 4 questions is transferred to the corresponding field. The result for the two questions A 1/4 and A 3/4 results from the data already existing in Safefood-online.

Likelihood of detection
field A: sure
field B: probably
field C: quite likely
field D: rather rare
field E: unlikely

Also for the likelihood of detection, the highest rating of the four questions is transferred to the relevant field (A - E).

The classification rules are described in detail in Chapter 3.



2.1.6 Sheet 3: Mitigation plan

For every query, a list with "recommended instructions for the selected articles or groups" appears.

FOOD FRAUD - Mitigation Plan
for raw material, food-contact material, animal feed
safefood-online GmbH 19.06.2019

Safefood-Online
Identify risks and increase opportunities

The data output has been limited to: 01.01.1979 - 19.06.2019
Selection: FOOD
Group: hazelnuts

hazelnuts

Question	Mitigation plan
Any known incidents of food fraud in the past? Actually any concerns, e.g. current notifications or alerts?	Review the inspection plan so that the known counterfeits / fraud cases are detected as far as possible during the incoming goods inspection.
How strong are the economic influences, such as price fluctuations on the market?	If the price is permanently very volatile and/ or the prices are increasing significantly, an exchange of the raw material should be considered.
From which country of origin the raw material is sourced? How long (time) and how complex is the supply chain? Are manipulations possible?	Choose, where feasible, countries of origin with a high CPI and a GCI as high as possible with no or acceptable risks. The Corruption Index (CPI) ranges from 0 to 100, where 100 indicates the lowest perception of corruption and is therefore the best possible result. The Growth Competitiveness Index (GCI) is an indicator of a country's competitiveness, with 100 indicating the highest growth competitiveness.
What is the market for the raw material (e.g. value of raw material / size of the market)? Is the raw material always available or what is the availability outside the harvest?	If the price is very volatile and/or the market is not transparent and there is little competition, an exchange of the raw material should be considered.
What's the transportation route? How are the raw materials packaged? Are there tamper-evident closures / seals?	No further measures required.
How is the quality of the raw material (unprocessed or processed, i.e. peeled, cut, crushed, ground, liquid or otherwise further processed) and how many stages are there from cultivation / extraction (farmer/ producer) to the delivery of the raw material to our company?	No further measures required.
Are there already control measures, such as supplier audits, in which topics such as adulteration, traceability, mass balance and ethical aspects are audited?	Further development of risk-based audit planning for suppliers based on estimated raw material risks. The frequency of supplier audits should be reassessed at least once a year through a hazard analysis and assessment of the associated risks. If adulterations and fraud are known, the audits should at least cover adulteration, traceability, mass balance and ethical issues. The audits may also cover the production of the raw materials.
Is it easy today to detect the known or possible adulterations in routine examinations? Are there any investigations or possibilities of discovery at all? What does the test plan look like?	No further measures required.

Point 3 lists the applicable rules for the **questions on the likelihood of occurrence (Questions A 1 - A 4) and on the likelihood of detection (Questions E 1 - E 4).**

At the end of each session, the data are stored and are now ready for evaluation. During the next analysis, the previously determined results can be re-evaluated and recalculated at any time. This can result in new recommendations and instructions for action. All results can also be processed electronically and archived after the download.

Important Note: Own Evaluation of the Instructions for Action
At the end of the list with the "instructions for action" there is the possibility to give your own evaluation. This own evaluation is very important, because even the best query tool does not replace the evaluation, which was checked again with common sense. For example, it is certainly not necessary for every container to have a tamper-evident seal when the complete load of a truck is delivered and the truck as such is sealed with a tamper-evident seal. Or another example: if a raw product is still in its original state, such as whole hazelnuts, then the probability of discovering that another shell fruit, such as peanuts, has been added, is certainly easy to detect. This is quite different with hazelnut flour and the possible addition of peanut flour or other components.

2.1.7 Sheet 4: Food Fraud Incidents:
On the fourth sheet, all known Food Fraud incidents for each article are shown in tabular form.

FOOD FRAUD - Incidents
for raw material, food-contact material, animal feed
safefood-online GmbH 24.06.2019

Safefood-Online
Identify risks and increase opportunities

The data output has been limited to: 01.01.1979 - 24.06.2019
Selection: FOOD
Group: hazelnuts

Art.Nr	Article	Known hazards	Country of origin
	hazelnuts	**food fraud / deception**	
		radiation	
		not known	
		GMO	
		not known	
		novel food	
		not known	
		adulteration / fraud	
		absence of health certificate(s) [2]	Serbia [1], Turkey [1]
		illegal import [1]	Turkey [1]
		improper health certificate(s) [8]	Turkey [8]
		incorrect labelling [1]	Turkey [1]
		food additives and flavourings	
		not known	
		composition	
		magnesium phosphide [1]	Turkey [1]

* = Own records included

This list of food fraud incidents is identical to the list of details that can be displayed for question A 1/4.

Tip:
It is recommended to analyze all results accurately so that they can be evaluated correctly after the Food Fraud Export.

2.2 Vulnerability assessment example tuna

Start Food Fraud Analysis

2.2.1 Questions regarding likelihood of occurence: example tuna

Likelihood of occurence
tuna

Question A 1/4

Any known incidents of food fraud in the past?
Actually any concerns, e.g. current notifications or alerts?

- ○ no incident
- ○ 1-3 incidents
- ○ 4-6 incidents
- ○ 7-10 incidents
- ◉ 11 and more incidents

This evaluation is done directly by Safefood-Online. No changes possible.

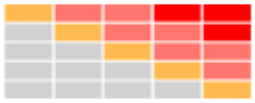
Show details

Note: In this query for "Tuna", the highest level in question A 1/4 is the highest likelihoodof occurrence (highest risk), as in the example under 2.1 Hazelnuts.

Question A 2/4

How strong are the economic influences, such as price fluctuations on the market?
Data from purchase department / supplier

- ○ There are no price fluctuations.
- ○ Price fluctuations are in the expected range.
- ◉ Price fluctuations more than 10% - 20% above the expected range.
- ○ Price fluctuations more than 20% - 40% above the expected range.
- ○ Price fluctuations more than 40% above the expected range.



Question A 3/4

From which country of origin the raw material is sourced? How long (time) and how complex is the supply chain? Are manipulations possible?

Select the country of origin for the raw material::

× Indonesia × Spain × Sri Lanka × Thailand

several countries can be selected, according to a worst case scenario, the worst rating is used

- ○ no risks
- ○ acceptable risks
- ○ conditionally acceptable risks
- ◉ unacceptable risks
- ○ critical risks

This evaluation is carried out by Safefood-Online using the Corruption Perceptions Index (CPI) and the Global Competitiveness Index (GCI). No change possible.

Question A 4/4

What is the market for the raw material (e.g. value of raw material / size of the market)? Is the raw material always available or what is the availability outside the harvest?

Assessment of QM / QS and purchasing

- ○ large market, raw material always available, regardless of the time of harvesting.
- ○ The market is well manageable. Raw material is not so valuable and there are many suppliers.
- ◉ Procurement is possible all year round. There are rarely bottlenecks.
- ○ Raw material is bought only by dealers.
- ○ The market is small, often intransparent and there are only few suppliers. Raw materials are very expensive.

For each question an answer must be clicked before proceeding to the step likelihood of detection:

Next step: likelihood of detection

2.2.2 Questions regarding likelihood of detection: example tuna

Likelihood of detection

tuna

What's the transportation route? How are the raw materials packaged?
Are there tamper-evident closures / seals?

Answer from the incoming goods inspections and corresponding notifications

- (●) Tamper-evident closure present or not required (e.g. for whole, undamaged fruits). It is always checked for possible damage upon receipt of the goods. There are no known damages.
- ( ) Tamper-evident closure present or not required (e.g. for whole, undamaged fruits). It is always checked for possible damage upon receipt of the goods. There are 1 - 2 known damages.
- ( ) Tamper-evident closure always available and required. There are 3 - 10 incidents per year with damaged tamper-evident closures, seals or seals.
- ( ) Tamper-evident closure is missing frequently (more than 10 incidents per year) although required and mandatory.
- ( ) No tamper-evident closure available although required.

Question E 2/4

How is the quality of the raw material (unprocessed or processed, i.e. peeled, cut, crushed, ground, liquid or otherwise further processed) and how many stages are there from cultivation / extraction (farmer/ producer) to the delivery of the raw material to our company?

Is the supply chain known? The closer to the origin, the less risky.

- ( ) There are no known adulterations for the product and from an economic point of view it can be assumed that it makes little sense to adulterate the raw material.
  Since there are known incidents, this selection is not possible.
- ( ) The raw material is directly purchased from the producer or trader. At least one of them is GFSI certified.
- (●) The raw material is directly purchased from the producer who is classified as trustworthy (e.g. multi-year cooperation).
- ( ) Although the producer is known, he has never been visited and there are at least two intermediate stages to the production of the raw material that is procured.
- ( ) For the production process of the raw meterial from harvesting to the final product there is not much knowledge available, so that possible weak points cannot be recognized and evaluated.

Question E 3/4

Are there already control measures, such as supplier audits, in which topics such as adulteration, traceability, mass balance and ethical aspects are audited?

- ( ) There is an annual risk-oriented audit planning. The audits are addressing issues such as adulteration and fraud (including detection of such events), traceability, mass balance and ethical aspects that are fully met by suppliers.
- (●) Risk-based supplier audits are carried out. Issues such as adulteration and fraud (including the detection of such events) and ethical aspects are not (yet) are sufficiently addressed.
- ( ) Risk-based supplier audits are carried out. Topics such as adulteration and fraud (including the detection of such events) as well as ethical aspects are not sufficiently addressed and are not fully met by the supplier.
- ( ) There are supplier audits, but these audits are not systematically planned and done situational.
- ( ) There are no systematic, risk-based supplier audits.

Question E 4/4

Is it easy today to detect the known or possible adulterations in routine examinations? Are there any investigations or possibilities of discovery at all? What does the test plan look like?

Assessment of QM / QA

- ○ There are no known adulterations.
  Sience there are known incidents, this selection is not possible.
- ◉ A quick test / routine examination is available to determine the possible adulteration. The method is used in our company or at the supplier's side and is part of the inspection plan with a fixed interval.
- ○ Methods with authenticity tests are available, but they are very complex and cannot be carried out in our own laboratory.
- ○ An inspection plan exists laying down the detection method(s) according to a specified interval. External laboratories are also responsible to test for authenticity.
- ○ Although there are analytical methods to detect adulterations, they can only be carried out in a few specialized laboratories. These tests are very costly and are only used when adulterations or fraud are known or reported.

Complete

After clicking on the button "Complete the following window appears:

Information

Your data has been saved and is now ready for evaluation.

Start FOOD Fraud Analysis Excel-Export

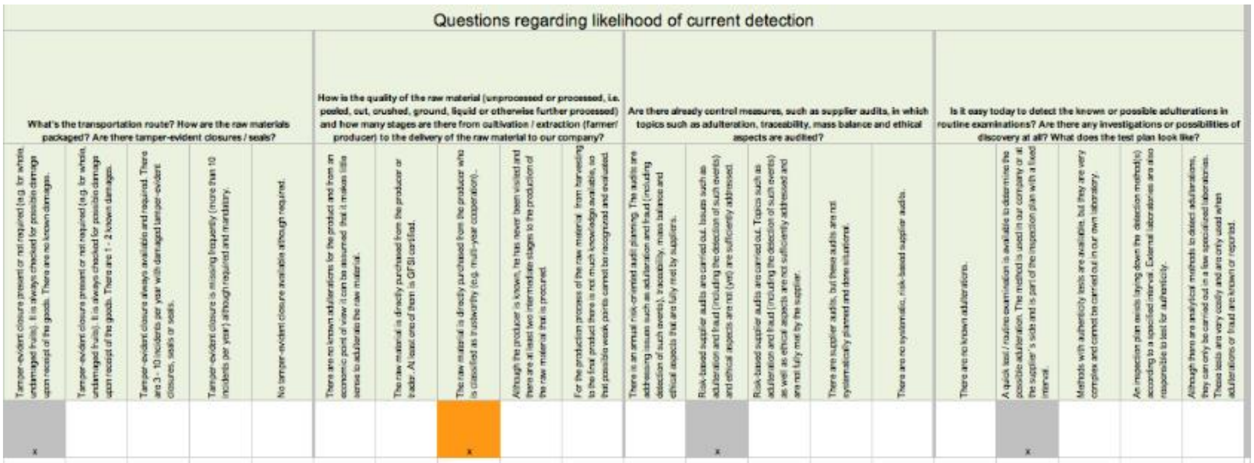
2.2.3 Evaluation using a Excel spread sheet

After the query is done an Excel spread sheet with 4 sheets is opened:

2.2.4 Sheet 1: Food Fraud Results

The first sheet summarizes all results of the selected group. This allows you to see at any time how the respective questions were answered. The colour indicates the classification in the risk matrix.

This Excel table can be extended as required, e.g. by the name of the supplier or the current price.



2.2.5 Sheet 2: Vulnerability assessment

In the second sheet, all selected articles in a risk matrix are sorted into the fields A1 to E5, depending on the risk assessment resulting from the analysis. The two evaluations of likelihood of occurrence and likelihood of detection are transferred to the matrix and entered in the corresponding field. This query tool only works if individual foods/food-contact materials and/ or animal feed are queried. For this reason, all groups are broken down into individual articles.

Regarding the classification the following rules are applied:

Likelihood of occurence:
field 1: unlikely
field 2: very rare
field 3: rarely
field 4: possible
field 5: often

At the end, the highest ranking of the four questions is adopted in the relevant field (1 - 5). The classification is resulting from answering all questions. The highest rating of the 4 questions is transferred to the corresponding field. The result for the two questions A 1/4 and A 3/4 results from the data already existing in Safefood-online.

Likelihood of detection
field A: sure
field B: probably
field C: quite likely
field D: rather rare
field E: unlikely

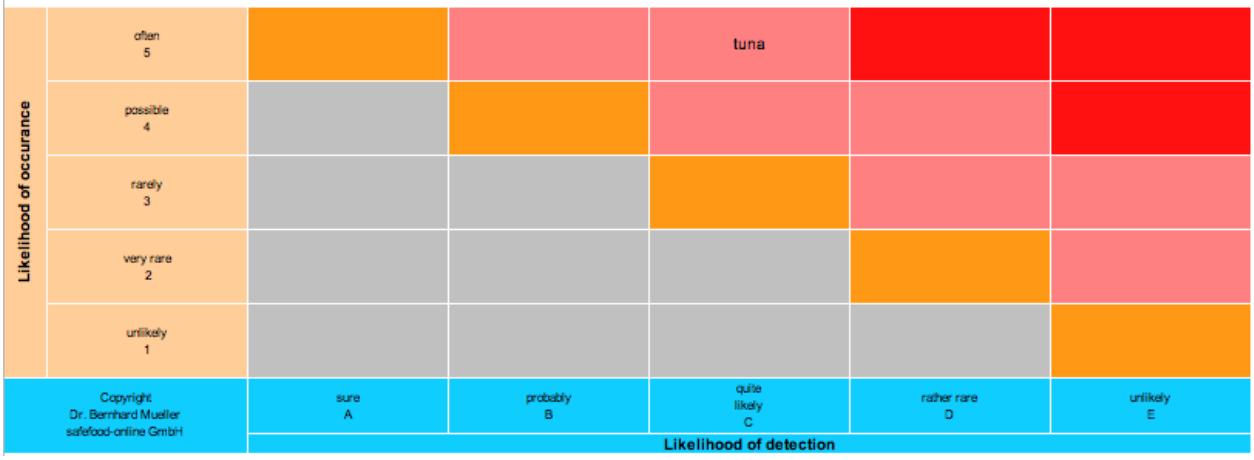
Also for the likelihood of detection, the highest rating of the four questions is transferred to the relevant field (A - E).

The classification rules are described in detail in Chapter 3.

FOOD FRAUD - Vulnerability Assessment
for raw material, food-contact material, animal feed
safefood-online GmbH 19.06.2019

Safefood-Online
Identify risks and increase opportunities

The data output has been limited to: 01.01.1979 - 19.06.2019
Selection: FOOD
Group: tuna



2.2.6 Sheet 3: Mitigation plan

For every query, a list with "recommended instructions for the selected articles or groups" appears.

FOOD FRAUD - Mitigation Plan
for raw material, food-contact material, animal feed
safefood-online GmbH 19.06.2019

Safefood-Online
Identify risks and increase opportunities

The data output has been limited to: 01.01.1979 - 19.06.2019
Selection: FOOD
Group: tuna

tuna	
Question	**Mitigation plan**
Any known incidents of food fraud in the past? Actually any concerns, e.g. current notifications or alerts?	Review the inspection plan so that the known counterfeits / fraud cases are detected as far as possible during the incoming goods inspection.
How strong are the economic influences, such as price fluctuations on the market?	Continue tracking price development (volatility), check inspection plan for incoming goods inspection, adjust if necessary. If the price is very volatile and/ or the prices are significantly increasing, an exchange of the raw material should be considered.
From which country of origin the raw material is sourced? How long (time) and how complex is the supply chain? Are manipulations possible?	Choose, where feasible, countries of origin with a high CPI and a GCI as high as possible with no or acceptable risks. The Corruption Index (CPI) ranges from 0 to 100, where 100 indicates the lowest perception of corruption and is therefore the best possible result. The Growth Competitiveness Index (GCI) is an indicator of a country's competitiveness, with 100 indicating the highest growth competitiveness.
What is the market for the raw material (e.g. value of raw material / size of the market)? Is the raw material always available or what is the availability outside the harvest?	No further measures required.
What's the transportation route? How are the raw materials packaged? Are there tamper-evident closures / seals?	No further measures required.
How is the quality of the raw material (unprocessed or processed, i.e. peeled, cut, crushed, ground, liquid or otherwise further processed) and how many stages are there from cultivation / extraction (farmer/ producer) to the delivery of the raw material to our company?	Establish risk-based audit planning for suppliers based on estimated raw material risks. It is important to consider all stages of the supply chain.
Are there already control measures, such as supplier audits, in which topics such as adulteration, traceability, mass balance and ethical aspects are audited?	Extension of the checklist for carrying out supplier audits covering the topics: adulteration, traceability, mass balance and ethical aspects.
Is it easy today to detect the known or possible adulterations in routine examinations? Are there any investigations or possibilities of discovery at all? What does the test plan look like?	No further measures required.
Own remarks:	

Point 3 lists the applicable rules for the **questions on the likelihood of occurrence (Questions A 1 - A 4) and on the likelihood of detection (Questions E 1 - E 4).**

At the end of each session, the data are stored and are now ready for evaluation. During the next analysis, the previously determined results can be re-evaluated and recalculated at any time. This can result in new recommendations and instructions for action. All results can also be processed electronically and archived after the download.

Important Note: Own Evaluation of the Instructions for Action
At the end of the list with the "instructions for action" there is the possibility to give your own evaluation. This own evaluation is very important, because even the best query tool does not replace the evaluation, which was checked again with common sense. For example, it is certainly not necessary for every container to have a tamper-evident seal when the complete load of a truck is delivered and the truck as such is sealed with a tamper-evident seal. Or another example: if a raw product is still in its original state, such as whole hazelnuts, then the probability of discovering that another shell fruit, such as peanuts, has been added, is certainly easy to detect. This is quite different with hazelnut flour and the possible addition of peanut flour or other components.

2.2.7 Sheet 4: Food Fraud Incidents:

On the fourth sheet, all known Food Fraud incidents for each article are shown in tabular form

FOOD FRAUD - Incidents
for raw material, food-contact material, animal feed
safefood-online GmbH 24.06.2019

Safefood-Online
Identify risks and increase opportunities

The data output has been limited to: 01.01.1979 - 24.06.2019
Selection: FOOD
Group: tuna

Art.Nr	Article	Known hazards	Country of origin
	tuna	**food fraud / deception**	
		radiation	
		not known	
		GMO	
		not known	
		novel food	
		not known	
		adulteration / fraud	
		absence of health certificate(s) [3]	Thailand [2], Philippines [1]
		absence of labelling [1]	Portugal [1]
		fraudulent health certificate(s) [1]	Ecuador [1]
		improper health certificate(s) [2]	Senegal [1], Mozambique [1]
		improper shelf life [1]	Italy [1]
		counterfeiting [1]	Italy [1]
		incorrect labelling [2]	Ecuador [1], Spain [1]
		mislabelling [1]	Spain [1]
		unauthorised establishment [1]	Spain [1]
		food additives and flavourings	
		E 120 - carmines [1]	Sri Lanka [1]
		E 251 - sodium nitrate [1]	Spain [1]
		E 452 - polyphosphates [1]	Spain [1]
		composition	
		carbon monoxide treatment [27]	country not mentioned [1], Philippines [2], Indonesia [4], Vietnam [7], Netherlands [2], Poland [1], Thailand [1], Costa Rica [1], Maldives [1], Spain [7]
		E 260 - synthetic acetic acid [1]	Spain [1]

* = Own records included

Tip:
It is recommended to analyze all results exactly, so that they can be evaluated correctly after the Food Fraud Export.

2.3 Vulnerability assessment FOOD FRAUD example plastic bowls

Start Food Fraud Analysis

2.3.1 Questions regarding likelihood of occurence: example plastic bowls

Likelihood of occurence

Plastic bowls

Question A 1/4

Any known incidents of food fraud in the past?
Actually any concerns, e.g. current notifications or alerts?

- ○ no incident
- ◉ 1-3 incidents
- ○ 4-6 incidents
- ○ 7-10 incidents
- ○ 11 and more incidents

This evaluation is done directly by Safefood-Online. No changes possible.

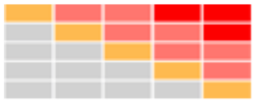
Show details

Note: With this query for "plastic bowls", the "highest" likelihood of occurrence (the highest risk) has not yet been reached with 1-3 incidents. The other questions about the likelihood of occurrence can, however, still influence the overall result (negatively). The results are later transferred to the risk matrix.

Question A 2/4

How strong are the economic influences, such as price fluctuations on the market?
Data from purchase department / supplier

- ○ There are no price fluctuations.
- ◉ Price fluctuations are in the expected range.
- ○ Price fluctuations more than 10% - 20% above the expected range.
- ○ Price fluctuations more than 20% - 40% above the expected range.
- ○ Price fluctuations more than 40% above the expected range.



Question A 3/4

From which country of origin the raw material is sourced? How long (time) and how complex is the supply chain? Are manipulations possible?

Select the country of origin for the raw material::

× China × Germany

several countries can be selected, according to a worst case scenario, the worst rating is used

- ○ no risks
- ○ acceptable risks
- ◉ conditionally acceptable risks
- ○ unacceptable risks
- ○ critical risks

This evaluation is carried out by Safefood-Online using the Corruption Perceptions Index (CPI) and the Global Competitiveness Index (GCI). No change possible.

Question A 4/4

What is the market for the raw material (e.g. value of raw material / size of the market)? Is the raw material always available or what is the availability outside the harvest?

Assessment of QM / QS and purchasing

- ○ large market, raw material always available, regardless of the time of harvesting.
- ◉ The market is well manageable. Raw material is not so valuable and there are many suppliers.
- ○ Procurement is possible all year round. There are rarely bottlenecks.
- ○ Raw material is bought only by dealers.
- ○ The market is small, often intransparent and there are only few suppliers. Raw materials are very expensive.

For each question an answer must be clicked before proceeding to the step likelihood of detection:

Next step: likelihood of detection

2.3.2 Questions regarding likelihood of detection: example plastic bowls:

Likelihood of detection
Plastic bowls

Question E 1/4

What's the transportation route? How are the raw materials packaged?
Are there tamper-evident closures / seals?

Answer from the incoming goods inspections and corresponding notifications

- (●) Tamper-evident closure present or not required (e.g. for whole, undamaged fruits). It is always checked for possible damage upon receipt of the goods. There are no known damages.
- ( ) Tamper-evident closure present or not required (e.g. for whole, undamaged fruits). It is always checked for possible damage upon receipt of the goods. There are 1 - 2 known damages.
- ( ) Tamper-evident closure always available and required. There are 3 - 10 incidents per year with damaged tamper-evident closures, seals or seals.
- ( ) Tamper-evident closure is missing frequently (more than 10 incidents per year) although required and mandatory.
- ( ) No tamper-evident closure available although required.

Question E 2/4

How is the quality of the raw material (unprocessed or processed, i.e. peeled, cut, crushed, ground, liquid or otherwise further processed) and how many stages are there from cultivation / extraction (farmer/ producer) to the delivery of the raw material to our company?

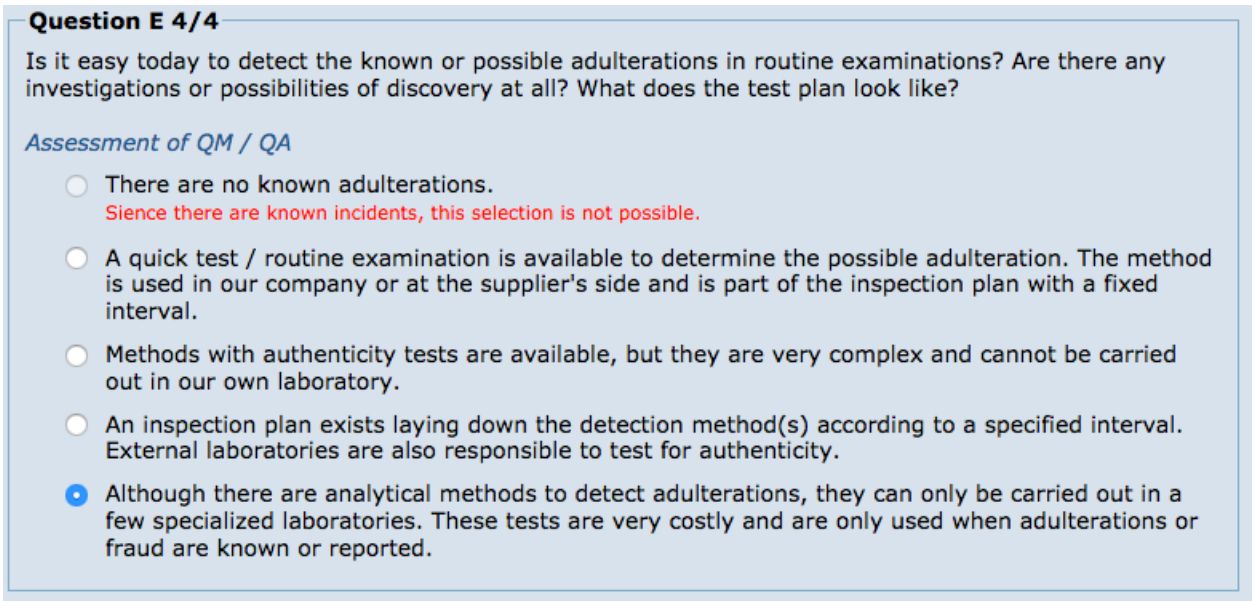
Is the supply chain known? The closer to the origin, the less risky.

- ( ) There are no known adulterations for the product and from an economic point of view it can be assumed that it makes little sense to adulterate the raw material.
  Since there are known incidents, this selection is not possible.
- ( ) The raw material is directly purchased from the producer or trader. At least one of them is GFSI certified.
- ( ) The raw material is directly purchased from the producer who is classified as trustworthy (e.g. multi-year cooperation).
- (●) Although the producer is known, he has never been visited and there are at least two intermediate stages to the production of the raw material that is procured.
- ( ) For the production process of the raw meterial from harvesting to the final product there is not much knowledge available, so that possible weak points cannot be recognized and evaluated.

Question E 3/4

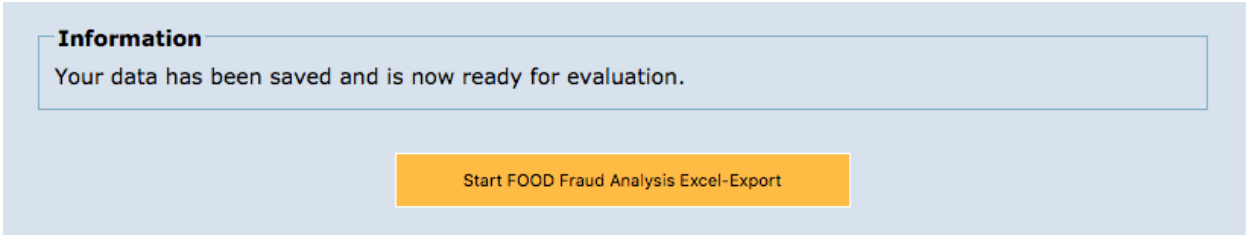
Are there already control measures, such as supplier audits, in which topics such as adulteration, traceability, mass balance and ethical aspects are audited?

- ( ) There is an annual risk-oriented audit planning. The audits are addressing issues such as adulteration and fraud (including detection of such events), traceability, mass balance and ethical aspects that are fully met by suppliers.
- ( ) Risk-based supplier audits are carried out. Issues such as adulteration and fraud (including the detection of such events) and ethical aspects are not (yet) are sufficiently addressed.
- (●) Risk-based supplier audits are carried out. Topics such as adulteration and fraud (including the detection of such events) as well as ethical aspects are not sufficiently addressed and are not fully met by the supplier.
- ( ) There are supplier audits, but these audits are not systematically planned and done situational.
- ( ) There are no systematic, risk-based supplier audits.



Complete

After clicking on the button “Complete the following window appears:

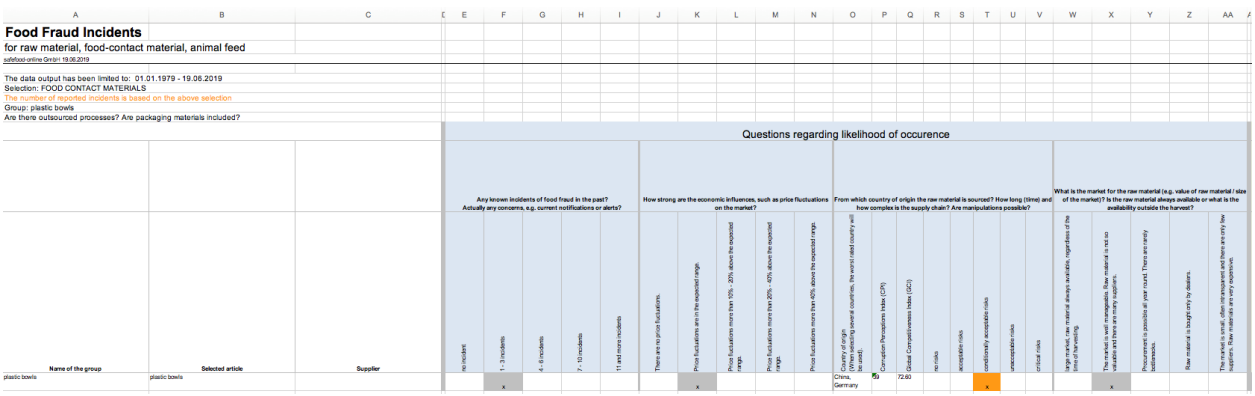


2.3.3 Evaluation using a Excel spread sheet

After the query is done an Excel spread sheet with 4 sheets is opened:

2.3.4 Sheet 1: Food Fraud Results

The first sheet summarizes all results of the selected group. This allows you to see at any time how the respective questions were answered. The colour indicates the classification in the risk matrix.
This Excel table can be extended as required, e.g. by the name of the supplier or the current price.



Questions regarding likelihood of current detection

What's the transportation route? How are the raw materials packaged? Are there tamper-evident closures / seals?				
Tamper-evident closure present or not required (e.g. for whole, undamaged fruits). It is always checked for possible damage upon receipt of the goods. There are no known damages.	Tamper-evident closure present or not required (e.g. for whole, undamaged fruits). It is always checked for possible damage upon receipt of the goods. There are 1 - 2 known damages.	Tamper-evident closure always available and required. There are 3 - 10 incidents per year with damaged tamper-evident closures, seals or seals.	Tamper-evident closure is missing frequently (more than 10 incidents per year) although required and mandatory.	No tamper-evident closure available although required.
x				

How is the quality of the raw material (unprocessed or processed, i.e. peeled, cut, crushed, ground, liquid or otherwise further processed) and how many stages are there from cultivation / extraction (farmer/ producer) to the delivery of the raw material to our company?				
There are no known adulterations for the product and from an economic point of view it can be assumed that it makes little sense to adulterate the raw material.	The raw material is directly purchased from the producer or trader. At least one of them is GFSI certified.	The raw material is directly purchased from the producer who is classified as trustworthy (e.g. multi-year cooperation)..	Although the producer is known, he has never been visited and there are at least two intermediate stages to the production of the raw material that is procured.	For the production process of the raw meterial from harvesting to the final product there is not much knowledge available, so that possible weak points cannot be recognized and evaluated.
			x	

Are there already control measures, such as supplier audits, in which topics such as adulteration, traceability, mass balance and ethical aspects are audited?				
There is an annual risk-oriented audit planning. The audits are addressing issues such as adulteration and fraud (including detection of such events), traceability, mass balance and ethical aspects that are fully met by suppliers.	Risk-based supplier audits are carried out. Issues such as adulteration and fraud (including the detection of such events) and ethical aspects are not (yet) are sufficiently addressed.	Risk-based supplier audits are carried out. Topics such as adulteration and fraud (including the detection of such events) as well as ethical aspects are not sufficiently addressed and are not fully met by the supplier.	There are supplier audits, but these audits are not systematically planned and done situational.	There are no systematic, risk-based supplier audits.
			x	

Is it easy today to detect the known or possible adulterations in routine examinations? Are there any investigations or possibilities of discovery at all? What does the test plan look like?				
There are no known adulterations.	A quick test / routine examination is available to determine the possible adulteration. The method is used in our company or at the supplier´s side and is part of the inspection plan with a fixed interval.	Methods with authenticity tests are available, but they are very complex and cannot be carried out in our own laboratory.	An inspection plan exists laying down the detection method(s) according to a specified interval. External laboratories are also responsible to test for authenticity.	Although there are analytical methods to detect adulterations, they can only be carried out in a few specialized laboratories. These tests are very costly and are only used when adulterations or fraud are known or reported.
				x

2.3.5 Sheet 2: Vulnerability assessment

In the second sheet, all selected articles in a risk matrix are sorted into the fields A1 to E5, depending on the risk assessment resulting from the analysis. The two evaluations of likelihood of occurrence and likelihood of detection are transferred to the matrix and entered in the corresponding field. This query tool only works if individual foods/food-contact materials and/ or animal feed are queried. For this reason, all groups are broken down into individual articles.

Regarding the classification the following rules are applied:

Likelihood of occurence:
field 1: unlikely
field 2: very rare
field 3: rarely
field 4: possible
field 5: often

At the end, the highest ranking of the four questions is adopted in the relevant field (1 - 5). The classification is resulting from answering all questions. The highest rating of the 4 questions is transferred to the corresponding field. The result for the two questions A 1/4 and A 3/4 results from the data already existing in Safefood-online.

Likelihood of detection
field A: sure
field B: probably
field C: quite likely
field D: rather rare
field E: unlikely

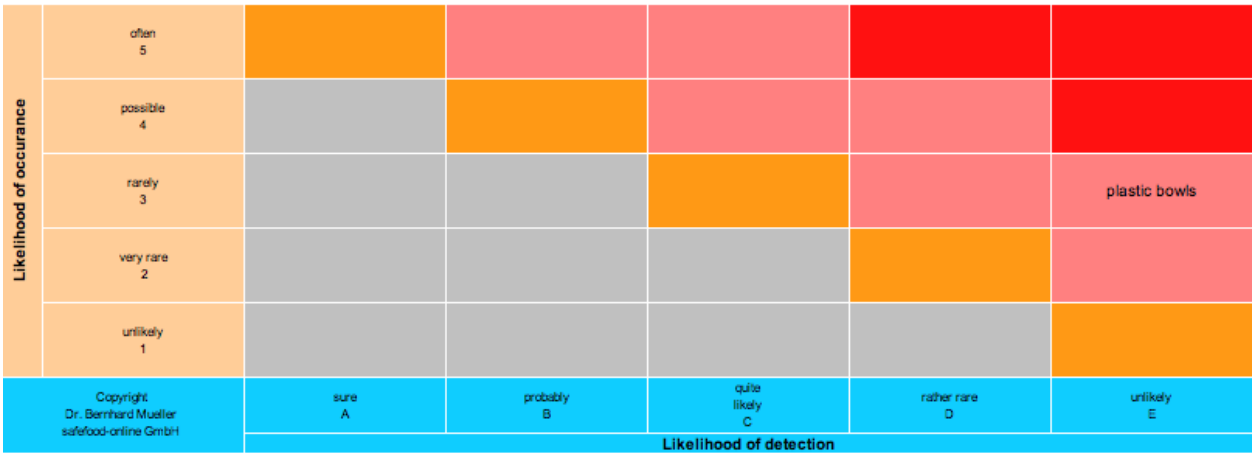
Also for the likelihood of detection, the highest rating of the four questions is transferred to the relevant field (A - E).

The classification rules are described in detail in Chapter 3.

FOOD FRAUD - Vulnerability Assessment
for raw material, food-contact material, animal feed
safefood-online GmbH 19.06.2019

Safefood-Online
Identify risks and increase opportunities

The data output has been limited to: 01.01.1979 - 19.06.2019
Selection: FOOD CONTACT MATERIALS
Group: plastic bowls



2.3.6 Sheet 3: Mitigation plan

For every query, a list with "recommended instructions for the selected articles or groups" appears.

FOOD FRAUD - Mitigation Plan
for raw material, food-contact material, animal feed
safefood-online GmbH 19.06.2019

Safefood-Online
Identify risks and increase opportunities

The data output has been limited to: 01.01.1979 - 19.06.2019
Selection: FOOD CONTACT MATERIALS
Group: plastic bowls

plastic bowls

Question	Mitigation plan
Any known incidents of food fraud in the past? Actually any concerns, e.g. current notifications or alerts?	No further measures required.
How strong are the economic influences, such as price fluctuations on the market?	No further measures required.
From which country of origin the raw material is sourced? How long (time) and how complex is the supply chain? Are manipulations possible?	Choose, if possible, countries of origin with a high CPI and the highest possible GCI with no or acceptable risks. The Corruption Index (CPI) ranges from 0 to 100, where 100 indicates the lowest perception of corruption and is therefore the best possible result. The Growth Competitiveness Index (GCI) is an indicator of a country's competitiveness, with 100 indicating the highest growth competitiveness.
What is the market for the raw material (e.g. value of raw material / size of the market)? Is the raw material always available or what is the availability outside the harvest?	No further measures required.
What's the transportation route? How are the raw materials packaged? Are there tamper-evident closures / seals?	No further measures required.
How is the quality of the raw material (unprocessed or processed, i.e. peeled, cut, crushed, ground, liquid or otherwise further processed) and how many stages are there from cultivation / extraction (farmer/ producer) to the delivery of the raw material to our company?	Establish risk-based audit planning for suppliers based on estimated raw material risks. It is important to consider all stages of the supply chain.
Are there already control measures, such as supplier audits, in which topics such as adulteration, traceability, mass balance and ethical aspects are audited?	Further development of risk-based audit planning for suppliers based on estimated raw material risks. The frequency of supplier audits should be reassessed at least once a year through a hazard analysis and assessment of the associated risks. If adulterations and fraud are known, the audits should at least cover adulteration, traceability, mass balance and ethical issues. The audits may also cover the production of the raw materials.
Is it easy today to detect the known or possible adulterations in routine examinations? Are there any investigations or possibilities of discovery at all? What does the test plan look like?	Cooperation with institutes, laboratories, associations, suppliers and/ or other suitable external partners. The aim must be to develop a suitable routine method that can be used in the company's own laboratory or at the supplier in order to detect adulterations quickly and reliably. It is also helpful to ask he supplier for a certificate according to a GFSI standard.
Own remarks:	

Point 3 lists the applicable rules for the **questions on the likelihood of occurrence (Questions A 1 - A 4) and on the likelihood of detection (Questions E 1 - E 4).**

At the end of each session, the data are stored and are now ready for evaluation. During the next analysis, the previously determined results can be re-evaluated and recalculated at any time. This can result in new recommendations and instructions for action. All results can also be processed electronically and archived after the download.

Important Note: Own Evaluation of the Instructions for Action
At the end of the list with the "instructions for action" there is the possibility to give your own evaluation. This own evaluation is very important, because even the best query tool does not replace the evaluation, which was checked again with common sense. For example, it is certainly not necessary for every container to have a tamper-evident seal when the complete load of a truck is delivered and the truck as such is sealed with a tamper-evident seal. Or another example: if a raw product is still in its original state, such as whole hazelnuts, then the probability of discovering that another shell fruit, such as peanuts, has been added, is certainly easy to detect. This is quite different with hazelnut flour and the possible addition of peanut flour or other components.

2.3.7 Sheet 4: Food Fraud Incidents:

On the fourth sheet, all known Food Fraud incidents for each article are shown in tabular form.

FOOD FRAUD - Incidents
for raw material, food-contact material, animal feed
safefood-online GmbH 24.06.2019

Safefood-Online
Identify risks and increase opportunities

The data output has been limited to: 01.01.1979 - 24.06.2019
Selection: FOOD CONTACT MATERIALS
Group: plastic bowls

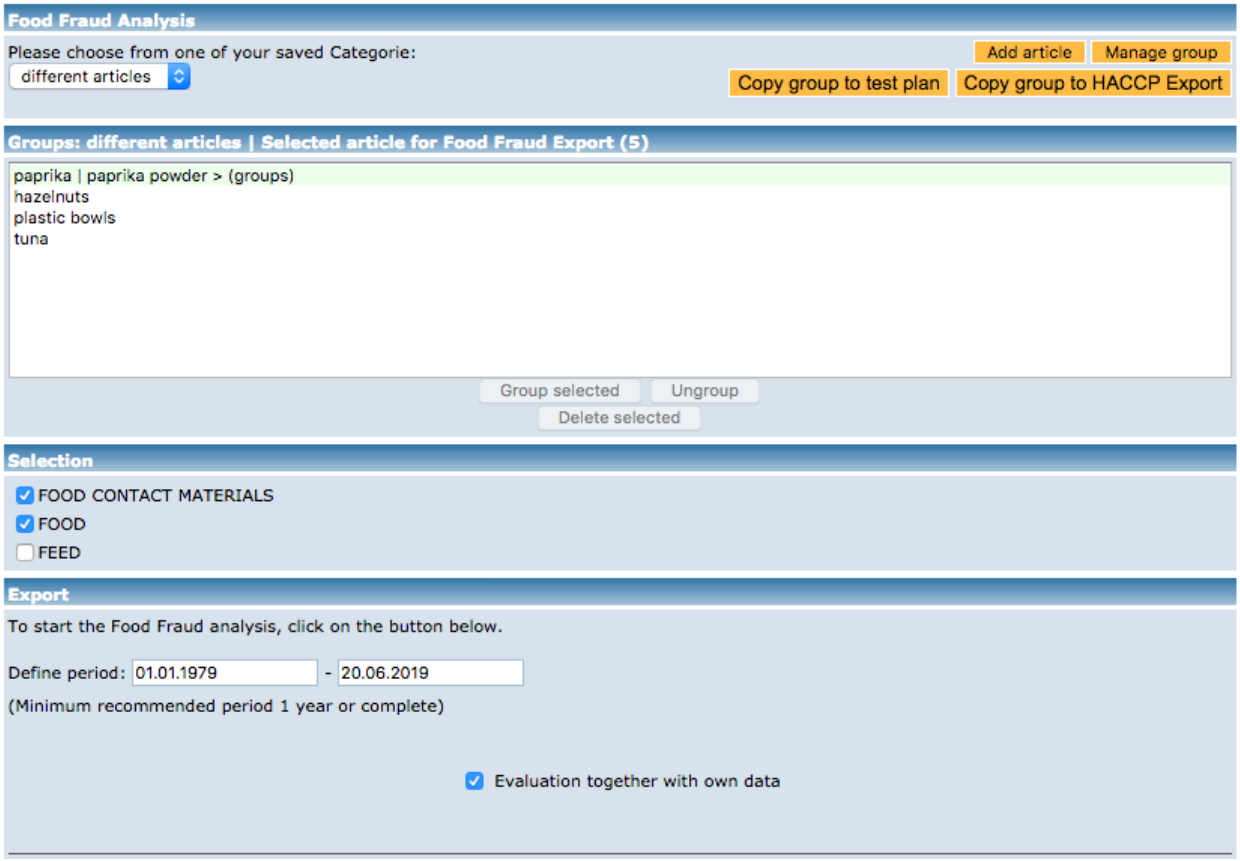
Art.Nr	Article	Known hazards	Country of origin
	plastic bowls	**food fraud / deception**	
		radiation	
		not known	
		GMO	
		not known	
		novel food	
		not known	
		adulteration / fraud	
		improper health certificate(s) [1]	China [1]
		food additives and flavourings	
		not known	
		composition	
		not known	

* = Own records included

Tip:
It is recommended to analyze all results accurately so that they can be evaluated correctly after the Food Fraud Export.

2.4 Vulnerability assessment FOOD FRAUD example with different articles

It is possible to combine different articles (food, food contact materials and/ or animal feed. It is recommended only to combine articles to groups making sense, i.e. paprika and paprika powder but not plastic bowls and paprika.

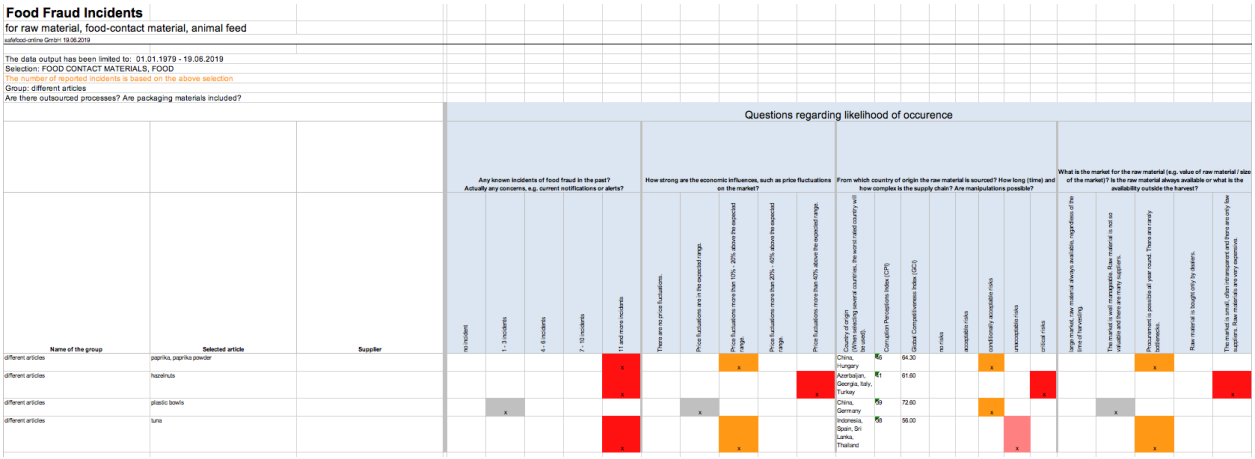


The result might be as follows:

2.4.1 Evaluation using a Excel spread sheet

After the query is done an Excel spread sheet with 4 sheets is opened:

2.4.2 Sheet 1: Food Fraud Results



Questions regarding likelihood of current detection																														
What's the transportation route? How are the raw materials packaged? Are there tamper-evident closures / seals?						How is the quality of the raw material (unprocessed or processed, i.e. peeled, cut, crushed, ground, liquid or otherwise further processed) and how many stages are there from cultivation / extraction (farmer/ producer) to the delivery of the raw material to our company?					Are there already control measures, such as supplier audits, in which topics such as adulteration, traceability, mass balance and ethical aspects are audited?					Is it easy today to detect the known or possible adulterations in routine examinations? Are there any investigations or possibilities of discovery at all? What does the test plan look like?									
Tamper-evident closure present or not required (e.g. for whole, undamaged fruits). It is always checked for possible damage upon receipt of the goods. There are no known damages.	Tamper-evident closure present or not required (e.g. for whole, undamaged fruits). It is always checked for possible damage upon receipt of the goods. There are 1 - 2 known damages.	Tamper-evident closure always available and required. There are 3 - 10 incidents per year with damaged tamper-evident closures, seals or seals.	Tamper-evident closure is missing frequently (more than 10 incidents per year) although required and mandatory.	No tamper-evident closure available although required.	There are no known adulterations for the product and from an economic point of view it can be assumed that it makes little sense to adulterate the raw material.	The raw material is directly purchased from the producer or trader. At least one of them is GFSI certified.	The raw material is directly purchased from the producer who is classified as trustworthy (e.g. multi-year cooperation).	Although the producer is known, he has never been visited and there are at least two intermediate stages to the production of the raw material that is procured.	For the production process of the raw material from harvesting to the final product there is not much knowledge available, so that possible weak points cannot be recognized and evaluated.	There is an annual risk-oriented audit planning. The audits are addressing issues such as adulteration and fraud (including detection of such events), traceability, mass balance and ethical aspects that are fully met by suppliers.	Risk-based supplier audits are carried out. Issues such as adulteration and fraud (including the detection of such events) and ethical aspects are not (yet) are sufficiently addressed.	Risk-based supplier audits are carried out. Topics such as adulteration and fraud (including the detection of such events) as well as ethical aspects are not sufficiently addressed and are not fully met by the supplier.	There are supplier audits, but these audits are not systematically planned and done situational.	There are no systematic, risk-based supplier audits.	There are no known adulterations.	A quick test / routine examination is available to determine the possible adulteration. The method is used in our company or at the supplier's side and is part of the inspection plan with a fixed interval.	Methods with authenticity tests are available, but they are very complex and cannot be carried out in our own laboratory.	An inspection plan exists laying down the detection method(s) according to a specified interval. External laboratories are also responsible to test for authenticity.	Although there are analytical methods to detect adulterations, they can only be carried out in a few specialized laboratories. These tests are very costly and are only used when adulterations or fraud are known or reported.						
	x					x						x				x												
x						x		x				x				x					x							
x												x														x		
x							x				x										x							

2.4.3 Sheet 2: Vulnerability assessment

FOOD FRAUD - Vulnerability Assessment
for raw material, food-contact material, animal feed
safefood-online GmbH 19.06.2019

Safefood-Online
Identify risks and increase opportunities

The data output has been limited to: 01.01.1979 - 19.06.2019
Selection: FOOD CONTACT MATERIALS, FOOD
Group: different articles

Likelihood of occurance	sure A	probably B	quite likely C	rather rare D	unlikely E
often 5			paprika, paprika powder, hazelnuts, tuna		
possible 4					
rarely 3					plastic bowls
very rare 2					
unlikely 1					

Likelihood of detection

2.4.4 Sheet 3: Mitigation plan

FOOD FRAUD - Mitigation Plan

for raw material, food-contact material, animal feed

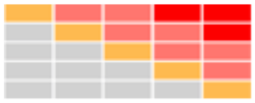
safefood-online GmbH 19.06.2019

Safefood-Online
Identify risks and increase opportunities

The data output has been limited to: 01.01.1979 - 19.06.2019
Selection: FOOD CONTACT MATERIALS, FOOD
Group: different articles

hazelnuts	
Question	**Mitigation plan**
Any known incidents of food fraud in the past? Actually any concerns, e.g. current notifications or alerts?	Review the inspection plan so that the known counterfeits / fraud cases are detected as far as possible during the incoming goods inspection.
How strong are the economic influences, such as price fluctuations on the market?	If the price is permanently very volatile and/ or the prices are increasing significantly, an exchange of the raw material should be considered.
From which country of origin the raw material is sourced? How long (time) and how complex is the supply chain? Are manipulations possible?	Choose, where feasible, countries of origin with a high CPI and a GCI as high as possible with no or acceptable risks. The Corruption Index (CPI) ranges from 0 to 100, where 100 indicates the lowest perception of corruption and is therefore the best possible result. The Growth Competitiveness Index (GCI) is an indicator of a country's competitiveness, with 100 indicating the highest growth competitiveness.
What is the market for the raw material (e.g. value of raw material / size of the market)? Is the raw material always available or what is the availability outside the harvest?	If the price is very volatile and/or the market is not transparent and there is little competition, an exchange of the raw material should be considered.
What's the transportation route? How are the raw materials packaged? Are there tamper-evident closures / seals?	No further measures required.
How is the quality of the raw material (unprocessed or processed, i.e. peeled, cut, crushed, ground, liquid or otherwise further processed) and how many stages are there from cultivation / extraction (farmer/ producer) to the delivery of the raw material to our company?	No further measures required.
Are there already control measures, such as supplier audits, in which topics such as adulteration, traceability, mass balance and ethical aspects are audited?	Further development of risk-based audit planning for suppliers based on estimated raw material risks. The frequency of supplier audits should be reassessed at least once a year through a hazard analysis and assessment of the associated risks. If adulterations and fraud are known, the audits should at least cover adulteration, traceability, mass balance and ethical issues. The audits may also cover the production of the raw materials.
Is it easy today to detect the known or possible adulterations in routine examinations? Are there any investigations or possibilities of discovery at all? What does the test plan look like?	No further measures required.
Own remarks:	

GROUP > paprika / paprika powder	
Question	**Mitigation plan**
Any known incidents of food fraud in the past? Actually any concerns, e.g. current notifications or alerts?	Review the inspection plan so that the known counterfeits / fraud cases are detected as far as possible during the incoming goods inspection.
How strong are the economic influences, such as price fluctuations on the market?	Continue tracking price development (volatility), check inspection plan for incoming goods inspection, adjust if necessary. If the price is very volatile and/ or the prices are significantly increasing, an exchange of the raw material should be considered.
From which country of origin the raw material is sourced? How long (time) and how complex is the supply chain? Are manipulations possible?	Choose, if possible, countries of origin with a high CPI and the highest possible GCI with no or acceptable risks. The Corruption Index (CPI) ranges from 0 to 100, where 100 indicates the lowest perception of corruption and is therefore the best possible result. The Growth Competitiveness Index (GCI) is an indicator of a country's competitiveness, with 100 indicating the highest growth competitiveness.
What is the market for the raw material (e.g. value of raw material / size of the market)? Is the raw material always available or what is the availability outside the harvest?	No further measures required.
What's the transportation route? How are the raw materials packaged? Are there tamper-evident closures / seals?	No further measures required.
How is the quality of the raw material (unprocessed or processed, i.e. peeled, cut, crushed, ground, liquid or otherwise further processed) and how many stages are there from cultivation / extraction (farmer/ producer) to the delivery of the raw material to our company?	No further measures required.
Are there already control measures, such as supplier audits, in which topics such as adulteration, traceability, mass balance and ethical aspects are audited?	Further development of risk-based audit planning for suppliers based on estimated raw material risks. The frequency of supplier audits should be reassessed at least once a year through a hazard analysis and assessment of the associated risks. If adulterations and fraud are known, the audits should at least cover adulteration, traceability, mass balance and ethical issues. The audits may also cover the production of the raw materials.
Is it easy today to detect the known or possible adulterations in routine examinations? Are there any investigations or possibilities of discovery at all? What does the test plan look like?	No further measures required.
Own remarks:	



plastic bowls	
Question	**Mitigation plan**
Any known incidents of food fraud in the past? Actually any concerns, e.g. current notifications or alerts?	No further measures required.
How strong are the economic influences, such as price fluctuations on the market?	No further measures required.
From which country of origin the raw material is sourced? How long (time) and how complex is the supply chain? Are manipulations possible?	Choose, if possible, countries of origin with a high CPI and the highest possible GCI with no or acceptable risks. The Corruption Index (CPI) ranges from 0 to 100, where 100 indicates the lowest perception of corruption and is therefore the best possible result. The Growth Competitiveness Index (GCI) is an indicator of a country's competitiveness, with 100 indicating the highest growth competitiveness.
What is the market for the raw material (e.g. value of raw material / size of the market)? Is the raw material always available or what is the availability outside the harvest?	No further measures required.
What's the transportation route? How are the raw materials packaged? Are there tamper-evident closures / seals?	No further measures required.
How is the quality of the raw material (unprocessed or processed, i.e. peeled, cut, crushed, ground, liquid or otherwise further processed) and how many stages are there from cultivation / extraction (farmer/ producer) to the delivery of the raw material to our company?	No further measures required.
Are there already control measures, such as supplier audits, in which topics such as adulteration, traceability, mass balance and ethical aspects are audited?	Further development of risk-based audit planning for suppliers based on estimated raw material risks. The frequency of supplier audits should be reassessed at least once a year through a hazard analysis and assessment of the associated risks. If adulterations and fraud are known, the audits should at least cover adulteration, traceability, mass balance and ethical issues. The audits may also cover the production of the raw materials.
Is it easy today to detect the known or possible adulterations in routine examinations? Are there any investigations or possibilities of discovery at all? What does the test plan look like?	Cooperation with institutes, laboratories, associations, suppliers and/ or other suitable external partners. The aim must be to develop a suitable routine method that can be used in the company's own laboratory or at the supplier in order to detect adulterations quickly and reliably. It is also helpful to ask he supplier for a certificate according to a GFSI standard.
Own remarks:	

tuna	
Question	**Mitigation plan**
Any known incidents of food fraud in the past? Actually any concerns, e.g. current notifications or alerts?	Review the inspection plan so that the known counterfeits / fraud cases are detected as far as possible during the incoming goods inspection.
How strong are the economic influences, such as price fluctuations on the market?	Continue tracking price development (volatility), check inspection plan for incoming goods inspection, adjust if necessary. If the price is very volatile and/ or the prices are significantly increasing, an exchange of the raw material should be considered.
From which country of origin the raw material is sourced? How long (time) and how complex is the supply chain? Are manipulations possible?	Choose, where feasible, countries of origin with a high CPI and a GCI as high as possible with no or acceptable risks. The Corruption Index (CPI) ranges from 0 to 100, where 100 indicates the lowest perception of corruption and is therefore the best possible result. The Growth Competitiveness Index (GCI) is an indicator of a country's competitiveness, with 100 indicating the highest growth competitiveness.
What is the market for the raw material (e.g. value of raw material / size of the market)? Is the raw material always available or what is the availability outside the harvest?	No further measures required.
What's the transportation route? How are the raw materials packaged? Are there tamper-evident closures / seals?	No further measures required.
How is the quality of the raw material (unprocessed or processed, i.e. peeled, cut, crushed, ground, liquid or otherwise further processed) and how many stages are there from cultivation / extraction (farmer/ producer) to the delivery of the raw material to our company?	Establish risk-based audit planning for suppliers based on estimated raw material risks. It is important to consider all stages of the supply chain.
Are there already control measures, such as supplier audits, in which topics such as adulteration, traceability, mass balance and ethical aspects are audited?	Extension of the checklist for carrying out supplier audits covering the topics: adulteration, traceability, mass balance and ethical aspects.
Is it easy today to detect the known or possible adulterations in routine examinations? Are there any investigations or possibilities of discovery at all? What does the test plan look like?	No further measures required.
Own remarks:	

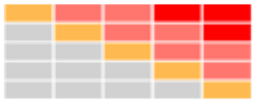
2.4.5 Sheet 4: Food Fraud incidents

FOOD FRAUD - Incidents
for raw material, food-contact material, animal feed
safefood-online GmbH 24.06.2019

Safefood-Online
Identify risks and increase opportunities

The data output has been limited to: 01.01.1979 - 24.06.2019
Selection: FOOD CONTACT MATERIALS, FOOD
Group: different articles

Art.Nr	Article	Known hazards	Country of origin
	hazelnuts	**food fraud / deception**	
		radiation	
		not known	
		GMO	
		not known	
		novel food	
		not known	
		adulteration / fraud	
		absence of health certificate(s) [2]	Serbia [1], Turkey [1]
		illegal import [1]	Turkey [1]
		improper health certificate(s) [8]	Turkey [8]
		incorrect labelling [1]	Turkey [1]
		food additives and flavourings	
		not known	
		composition	
		magnesium phosphide [1]	Turkey [1]
	GROUP > paprika / paprika powder	**food fraud / deception**	
		radiation	
		irradiation [1]	China [1]
		GMO	
		not known	
		novel food	
		not known	
		adulteration / fraud	
		adulteration [1]	China [1]
		dilution [1]	France [1]
		improper health certificate(s) [3]	Ethiopia [3]
		food additives and flavourings	
		Sudan 1 [30]	Netherlands [1], Turkey [16], Spain [3], Italy [1], Czech Republic [2], country not mentioned [1], India [1], China [1], Bosnia and Herzegovina [1], Poland [1], Germany [1], Lebanon [1]
		Sudan 4 [17]	Netherlands [1], Turkey [9], Bosnia and Herzegovina [1], Poland [1], Czech Republic [1], Spain [2], Germany [1], Lebanon [1]
		colour Orange II [1]	Ghana [1]
		E 160b - annato/bixin/norbixin [11]	Egypt [1], China [2], Spain [5], Peru [2], Lebanon [1]
		Sudan 3 [1]	Bosnia and Herzegovina [1]
		composition	
		Fast Garnet [1]	Turkey [1]
		Para Red [1]	Spain [1]
	plastic bowls	**food fraud / deception**	
		radiation	
		not known	
		GMO	
		not known	
		novel food	
		not known	
		adulteration / fraud	
		improper health certificate(s) [1]	China [1]
		food additives and flavourings	
		not known	
		composition	
		not known	



	tuna	**food fraud / deception**	
		radiation	
		not known	
		GMO	
		not known	
		novel food	
		not known	
		adulteration / fraud	
		absence of health certificate(s) [3]	Thailand [2], Philippines [1]
		absence of labelling [1]	Portugal [1]
		fraudulent health certificate(s) [1]	Ecuador [1]
		improper health certificate(s) [2]	Senegal [1], Mozambique [1]
		improper shelf life [1]	Italy [1]
		counterfeiting [1]	Italy [1]
		incorrect labelling [2]	Ecuador [1], Spain [1]
		mislabelling [1]	Spain [1]
		unauthorised establishment [1]	Spain [1]
		food additives and flavourings	
		E 120 - carmines [1]	Sri Lanka [1]
		E 251 - sodium nitrate [1]	Spain [1]
		E 452 - polyphosphates [1]	Spain [1]
		composition	
		carbon monoxide treatment [27]	country not mentioned [1], Philippines [2], Indonesia [4], Vietnam [7], Netherlands [2], Poland [1], Thailand [1], Costa Rica [1], Maldives [1], Spain [7]
		E 260 - synthetic acetic acid [1]	Spain [1]

* = Own records included

3 Rules regarding the questions

3.1 Rules regarding the questions to the likelihood of occurrence (Questions A 1 – A 4)

Question A 1/4 Any known incidents of food fraud in the past? Actually any concerns, e.g. current notifications or alerts?		
1	no incident (-->result directly shown from safefood-online)	No further measures required.
2	1-3 incidents (-->result directly shown from safefood-online)	No further measures required.
3	4-6 incidents (-->result directly shown from safefood-online)	Review the inspection plan so that the known counterfeits / fraud cases are detected as far as possible during the incoming goods inspection.
4	7-10 incidents (-->result directly shown from safefood-online)	Review the inspection plan so that the known counterfeits / fraud cases are detected as far as possible during the incoming goods inspection.
5	11 and more incidents (-->result directly shown from safefood-online)	Review the inspection plan so that the known counterfeits / fraud cases are detected as far as possible during the incoming goods inspection.

Question A 2/4 How strong are the economic influences, such as price fluctuations on the market? Data from purchase department / supplier		
1	There are no price fluctuations.	No further measures required.
2	Price fluctuations are in the expected range.	No further measures required.
3	Price fluctuations more than 10% - 20% above the expected range.	Continue tracking price development (volatility), check inspection plan for incoming goods inspection, adjust if necessary. If the price is very volatile and/ or the prices are significantly increasing, an exchange of the raw material should be considered.
4	Price fluctuations more than 20% - 40% above the expected range.	Continue tracking price development (volatility), check inspection plan for incoming goods inspection, adjust if necessary. If the price is very volatile and/ or the prices are significantly increasing, an exchange of the raw material should be considered.
5	Price fluctuations more than 40% above the expected range.	If the price is permanently very volatile and/ or the prices are increasing significantly, an exchange of the raw material should be considered.

Question A 3/4 From which country of origin the raw material is sourced? How long (time) and how complex is the supply chain? Are manipulations possible? Select the country of origin for the raw material		
several countries can be selected, according to a worst case scenario, the worst rating is used		
1	no risks (-->show result directly from safefood-online)	No further measures required.
2	acceptable risks (-->show result directly from safefood-online)	No further measures required.
3	conditionally acceptable risks (-->show result directly from safefood-online)	Choose, if possible, countries of origin with a high CPI and the highest possible GCI with no or acceptable risks. The Corruption Index (CPI) ranges from 0 to 100, where 100 indicates the lowest perception of corruption and is therefore the best possible result. The Growth Competitiveness Index (GCI) is an indicator of a country's competitiveness, with 100 indicating the highest growth competitiveness.
4	unacceptable risks (-->display result directly from safefood-online)	Choose, if possible, countries of origin with a high CPI and the highest possible GCI with no or acceptable risks. The Corruption Index (CPI) ranges from 0 to 100, where 100 indicates the lowest perception of corruption and is therefore the best possible result. The Growth Competitiveness Index (GCI) is an indicator of a country's competitiveness, with 100 indicating the highest growth competitiveness.
5	critical risks (-->display result directly from safefood-online)	Choose, if possible, countries of origin with a high CPI and the highest possible GCI with no or acceptable risks. The Corruption Index (CPI) ranges from 0 to 100, where 100 indicates the lowest perception of corruption and is therefore the best possible result. The Growth Competitiveness Index (GCI) is an indicator of a country's competitiveness, with 100 indicating the highest growth competitiveness.

Question A 4/4 What is the market for the raw material (e.g. value of raw material / size of the market)? Is the raw material always available or what is the availability outside the harvest? Assessment of QM / QS and purchasing		
1	large market, raw material always available, regardless of the time of harvesting	No further measures required.
2	large market, raw material always available, regardless of the time of harvesting	No further measures required.
3	Procurement is possible all year round. There are rarely bottlenecks	No further measures required.
4	Raw material is bought only by dealers	Traders should inform about the producers and for the producers risk-based supplier audits should be planned.
5	The market is small, often intransparent and there are only few suppliers. Raw materials are very expensive	If the price is very volatile and/or the market is not transparent and there is little competition, an exchange of the raw material should be considered.

3.2 Rules regarding the questions to the likelihood of occurrence (Questions A 1 – A 4)

Question E 1/4 What's the transportation route? How are the raw materials packaged? Are there tamper-evident closures / seals? Answer from the incoming goods inspections and corresponding notifications		
A	Tamper-evident closure present or not required (e.g. for whole, undamaged fruits). It is always checked for possible damage upon receipt of the goods. There are no known damages.	No further measures required.
B	Tamper-evident closure present or not required (e.g. for whole, undamaged fruits). It is always checked for possible damage upon receipt of the goods. There are 1 - 2 known damages.	No further measures required.
C	Tamper-evident closure always available and required. There are 3 - 10 incidents per year with damaged tamper-evident closures, seals or seals.	Find the cause of the damage. Supplier must provide other tamper-evident closures. Define inspection at goods receipt as a mandatory inspection step.
D	Tamper-evident closure is missing frequently (more than 10 incidents per year) although required and mandatory.	Supplier must provide packaging with tamper evident closures. Define inspection at goods receipt as a mandatory inspection step.
E	No tamper-evident closure available although required.	Supplier must provide packaging with tamper-evident closure. Define inspection at goods receipt as a mandatory inspection step. It is often also helpful to ask the supplier for a certificate according to a GFSI standard.

Question E 2/4 How is the quality of the raw material (unprocessed or processed i.e. peeled, cut, crushed, ground, liquid or otherwise further processed)? and how many stages are there from cultivation/ extraction (farmer/ producer) to the delivery of the raw material to our company? Is the raw material unprocessed or processed (e.g., peeled, cut, crushed, ground, liquid or otherwise further processed)? Is the supply chain known? The closer to the origin, the less risky.		
A	There are no known adulterations for the product and from an economic point of view it can be assumed that it makes little sense to adulterate the raw material. Note: This answer is blocked if there are known adulterations with the note "Since there are known incidents, this selection is not possible." and this answer is always set by Safefood-Online if there were no known adulterations.	No further measures required.
B	The raw material is directly purchased from the producer or trader. At least one of them is GFSI certified.	No further measures required.
C	The raw material is directly purchased from the producer who is classified as trustworthy (e.g. multi-year cooperation).	Establish risk-based audit planning for suppliers based on estimated raw material risks. It is important to consider all stages of the supply chain
D	Although the producer is known, he has never been visited and there are at least two intermediate stages to the production of the raw material that is procured.	Establish risk-based audit planning for suppliers based on estimated raw material risks. It is important to consider all stages of the supply chain.
E	For the production process of the raw meterial from harvesting to the final product there is not much knowledge available, so that possible weak points cannot be recognized and evaluated.	Build up knowledge about the production of raw materials / food in order to learn about possible weak points and pay specific attention to them.

Question E 3/4 Are there already control measures, such as supplier audits, in which topics such as adulteration, traceability, mass balance and ethical aspects are audited?		
A	There is an annual risk-oriented audit planning. The audits are addressing issues such as adulteration and fraud (including detection of such events), traceability, mass balance and ethical aspects that are fully met by suppliers.	No further measures required.
B	Risk-based supplier audits are carried out. Issues such as adulteration and fraud (including the detection of such events) and ethical aspects are not (yet) are sufficiently addressed.	Extension of the checklist for carrying out supplier audits covering the topics: adulteration, traceability, mass balance and ethical aspects.
C	Risk-based supplier audits are carried out. Topics such as adulteration and fraud (including the detection of such events) as well as ethical aspects are not sufficiently addressed and are not fully met by the supplier.	Further development of risk-based audit planning for suppliers based on estimated raw material risks. The frequency of supplier audits should be reassessed at least once a year through a hazard analysis and assessment of the associated risks. If adulterations and fraud are known, the audits should at least cover adulteration, traceability, mass balance and ethical issues. The audits may also cover the production of the raw materials.
D	There are supplier audits, but these audits are not systematically planned and done situational.	Development of a risk-based audit plan for suppliers, based on the estimated raw material risks. The frequency of supplier audits should be reassessed at least once a year by means of a hazard analysis and assessment of the associated risks. If adulterations and fraud are known, the audits should at least cover adulteration, traceability, mass balance and ethical issues. The audits may also cover the production of the raw materials.
E	There are no systematic, risk-based supplier audits.	Development of a risk-based audit plan for suppliers, based on the estimated raw material risks. The frequency of supplier audits should be reassessed at least once a year by means of a hazard analysis and assessment of the associated risks. If adulterations and fraud are known, the audits should at least cover adulteration, traceability, mass balance and ethical issues. The audits may also cover the production of the raw materials.

Question E 4/4 Is it easy today to detect the known or possible adulterations in routine examinations? Are there any investigations or possibilities of discovery at all? What does the test plan look like? Assessment of QM/ QA		
A	There are no known adulterations. *Note: This answer is blocked if there are known adulterations with the note "Because there are known incidents, this selection is not possible." and this answer is always set by Safefood-Online if there are no known adulterations*	No further measures required.
B	A quick test / routine examination is available to determine the possible adulteration. The method is used in our company or at the supplier's side and is part of the inspection plan with a fixed interval.	No further measures required.
C	Methods with authenticity tests are available, but they are very complex and cannot be carried out in our own laboratory.	It should be checked whether and how the methods are included in the own laboratory. This could possibly save time until the positive release of the raw materials.
D	An inspection plan exists laying down the detection method(s) according to a specified interval. External laboratories are also responsible to test for authenticity.	Further development of the test plan, set up on the basis of a hazard analysis and assessment of the associated risks including these raw materials. The inspection plan determines the interval of the specified inspection on a risk basis. The results are regularly evaluated in order to determine trends.
E	Although there are analytical methods to detect adulterations, they can only be carried out in a few specialized laboratories. These tests are very costly and are only used when adulterations or fraud are known or reported.	Cooperation with institutes, laboratories, associations, suppliers and/ or other suitable external partners. The aim must be to develop a suitable routine method that can be used in the company's own laboratory or at the supplier in order to detect adulterations quickly and reliably. It is also helpful to ask he supplier for a certificate according to a GFSI standard.

Please address your suggestions, questions and requests directly to:

safefood-online GmbH
Birkenweg 18
D-68723 Schwetzingen
T: +49 6202 92 36 97
F: +49 6202 92 36 96
M: +49 172 792 44 34
E: bernhard.mueller@safefood-online.de
URL:www.safefood-online.de
Managing director: Dr. Bernhard Müller