Safefood-Online
Identify risks and increase opportunities

Manual SAFEFOOD-ONLINE

1   Introduction to SAFEFOOD-ONLINE

SAFEFOOD-ONLINE is a valuable early warning system for the food industry based on a database to present and assess potential risks to food safety.

European and national food law has assigned responsibility for food safety to food companies, primarily to food manufacturers (Regulation (EC) 178/2002 "laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety"). It is therefore the central task of every food company to ensure through appropriate own-check procedures that the food produced is safe and harmless to health, e.g., in order to avoid recall actions. In most cases the effects of biological, chemical, allergenic or physical hazards are very costly, in some cases the consequences of recalls can even threaten the existence of the company.
With the Regulation (EC) No. 852/2004 on food hygiene, which came into force on 01.01.2006, the establishment of a HACCP concept has become mandatory for all food business operators. Within the framework of an HACCP concept, risk management plays an important role with the aim of identifying, minimizing and managing possible risks.

Especially for this task SAFEFOOD-ONLINE was developed:

SAFEFOOD-ONLINE processes the information of the European Rapid Alert System for Food and Feed (RASFF) and the Food Fraud notifications form the EU Monthly Food Fraud Summary Report on food, food contact materials and animal feed.

SAFEFOOD-ONLINE enables a multidimensional analysis and evaluation of risks and helps to quickly and efficiently assess the possible consequences and to take appropriate measures to minimize or control the risks.

SAFEFOOD-ONLINE is aimed at all food producers who wish to use their management system to identify risks at an early stage and thus make a proactive and risk-conscious contribution to positive business development.

SAFEFOOD-ONLINE contains per August 2024 about 81.000 notifications. The content of the database is constantly updated and adapted.
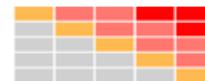
2 Benefits of the SAFEFOOD-ONLINE Database

The results of an Internet-based query are displayed in a risk landscape with recommended instructions. The type of presentation with SAFEFOOD-ONLINE is variable and can be further processed directly on the screen by clicking on the respective fields and results. By clicking on the "test version" tab (without registration), you have limited access to different examples.
The risk level is based on the frequency of notification of a specific food, contact material or feed. In this way the probable effect of the risk can be displayed.
Several individual risks are classified and represented in the risk matrix. The mutual relationships and dependencies can be determined by querying other available information, such as the country of manufacture, the article concerned, the hazard, the year and the type of notification. This information is useful to evaluate the results. The current database can be viewed directly on the homepage.
By constantly updating and expanding the data, e.g., from the RASFF, it is ensured that the risk landscapes created always contain the latest findings on food safety and make them usable. Via the database, notifications on food, food contact materials and animal feed can be retrieved and evaluated according to various possibilities.

3 First steps (after registration)

After the registration and the first Login it is recommended to make the following basic settings:

3.1 Adjusting the profile

Enter or change your personal data:
If you have forgotten your password, click on "Forgotten password" under "Login" on the homepage. You will then receive an e-mail to reset your password

- Subscribe to newsletter:
  If you select this option, you will receive the SAFEFOOD-ONLINE newsletter every month.

- Watchlist Notify-Mail:
   f you select this option, you will receive an e-mail immediately after entering new messages in SAFEFOOD-ONLINE, provided you have specified the corresponding product category(ies) in the watchlist.
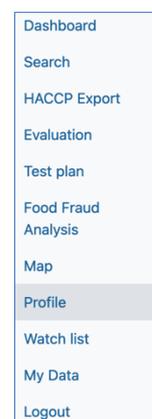
3.2 News Ticker

On a daily basis, all new notifications added to SAFEFOOD-ONLINE are displayed in a banner as a news ticker at the bottom of the page:

slower	faster					Hide Newsticker
	aflatoxins	carbon monoxide treatment	poor temperature control	aflatoxins	tadalafil	
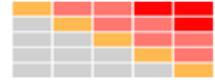
By clicking on "Hide Newsletter", the news ticker is closed (and can then be displayed again). The running speed can be adjusted. If you click on a message, a window opens with details about the notification.

3.3   Creating a Watchlist

For detailed instructions on how to create your own watch list, refer to point 13: "Monitoring hazards using a watch list".

4   Risk management in the company

Risk management should be integrated into the existing management system of every company as part of the planning process and as a management instrument. Both management tools have to support each other. The aim of risk management is not to exclude and to avoid any thread. Risks are generally associated with economic activity and every business activity. The level of a risk, i.e., the product of the probability of occurrence and the extent of damage, can depend on many factors, which can also change at short notice. Therefore, risk assessment is only valid for a limited period of time. The identification and control of risks is possible with the help of the European Rapid Alert System (RASFF) and other available data. Existing risks must be identified quickly and efficiently in order to minimize and control the risks by appropriate measures.

SAFEFOOD-ONLINE applies all elements that belong to an efficient risk management system based on the DIN ISO 31000 and ONR-Rule 49001 and thus fulfills the basic requirements for a risk management system for organizations from the perspective of product safety:

- DIN ISO 31000:2018   Risk management - Principles and guidelines

- ONR 49001:2014:   Risikomanagement für Organisationen und Systeme – Risikomanagement - Umsetzung von ISO 31000 in die Praxis

The risk-management-process
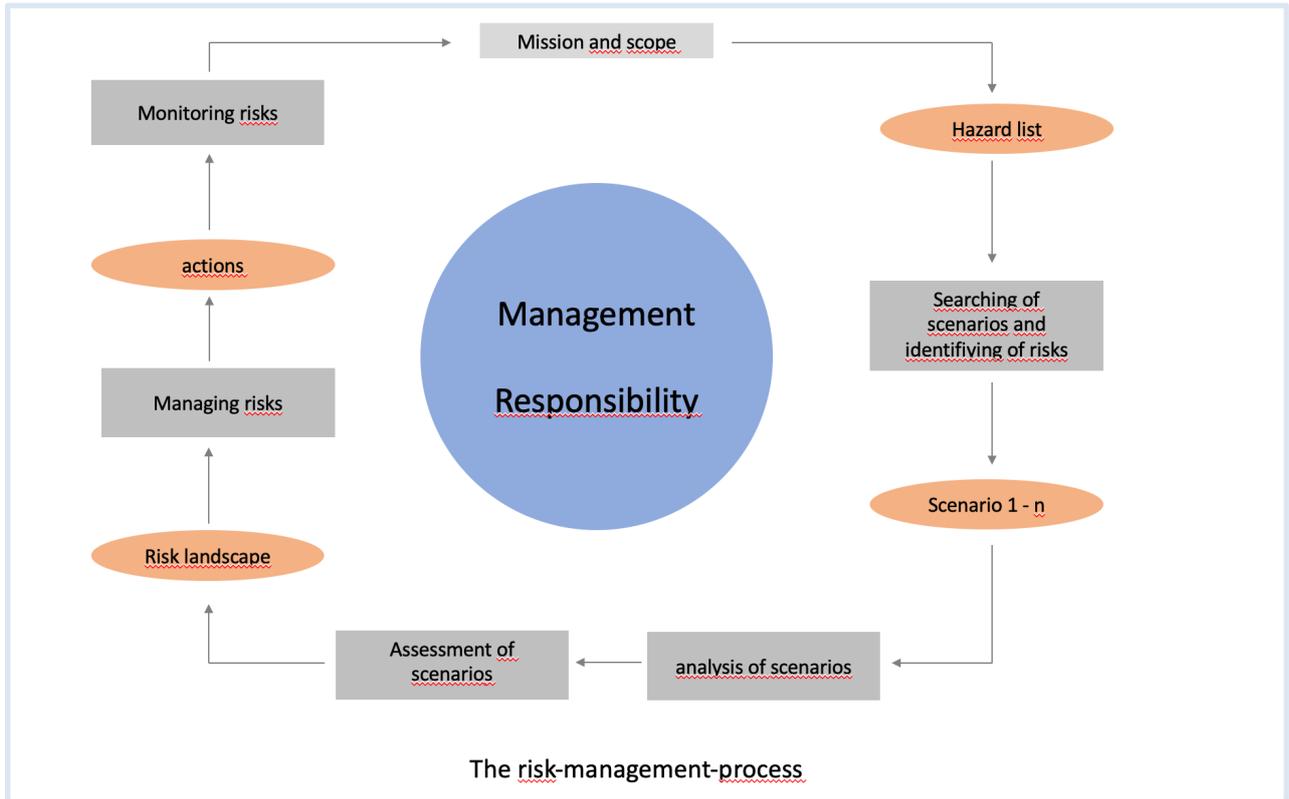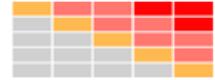
All available and known information as well as own or already known incidents should be included in the risk assessment, e.g., the evaluation of all internal findings after incoming goods inspection, but also external notifications from customers and/ or suppliers as well as facts which were known within the scope of an official complaint.

Each company can individually create its own risk landscape for a selected scenario from the information for the raw materials used and also for the final product where the ingredient was used. In this way, the key requirements of food law are implemented, with overall responsibility for the management of each company.

SAFEFOOD-ONLINE not only provides the available data, but also helps to assess the content of the risks. After analysing, the results are shown and evaluated in a risk landscape.

Integration of risk management in the existing management system
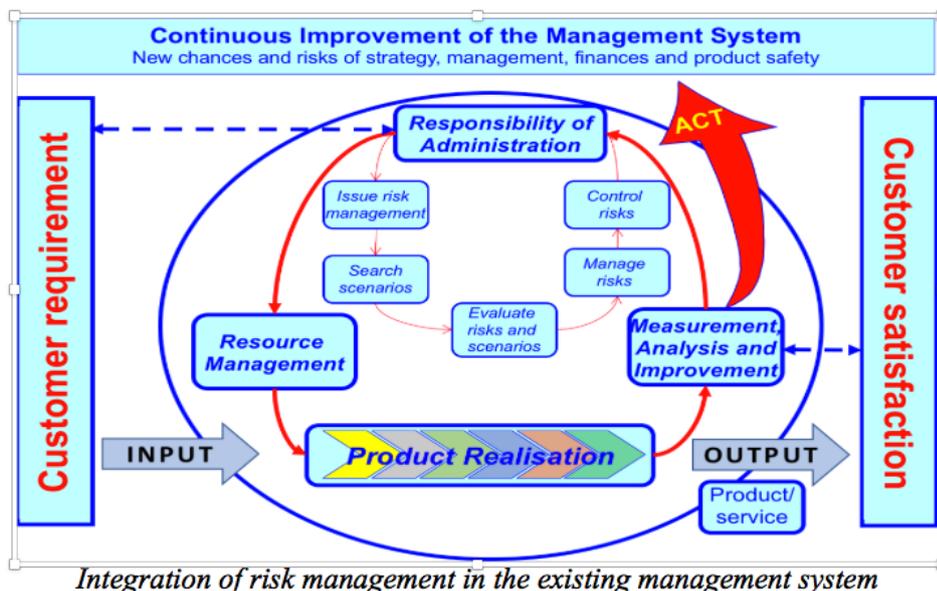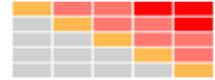
5 Who should use SAFEFOOD-ONLINE?

5.1 The Quality Manager

The quality manager has the possibility to adapt the inspection plan in a way that known or realistically expected risks are minimized or can be controlled. Within the framework of the HACCP verification, which must be carried out at least once a year, the raw materials used and the end products manufactured can be re-evaluated. The results are giving answers to the following questions:

- Which hazards must be included in the specification?
- How should the internal test plan be drawn up in order to monitor effectively known hazards?
- How can the test plan be optimized on the basis of current knowledge?
- How can the requirements of IFS, BRC or ISO 22000 be fulfilled with regard to the determination of the hazards of raw materials used and how can the risks be minimized or controlled?

5.2 Purchase Manager

The knowledge and control of possible hazards starts with the selection of the raw materials to be procured and the selection of suppliers. It is important to consider all existing notifications in SAFEFOOD-ONLINE. The database provides answers to the following questions:

- Which hazards are caused by which raw materials?
- Are there any hazards that point to a specific country?
- Which agreements can or must be made with suppliers?
- Which special measures are necessary to ensure fault-free raw materials?
- Are the suppliers aware of the hazards and are they controlled?

5.3 Product Development Manager

The risk assessment supports the product development manager in answering the following questions:

- What hazards are to be expected on the basis of the available data?
- Can or should certain raw materials be avoided?
- Do certain raw materials possibly have special risks that have to be taken into account?
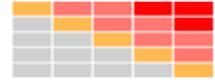
6 Selection and grouping of articles (for HACCP Export, Test Plan and Food Fraud Analysis)

6.1 Managing groups of articles

After clicking on the tab "Test plan", "HACCP Export" or "Food Fraud" a window opens with two options: "Add article" and "Manage group".

First, a new group can be created by pressing the "Manage group" button. This group can be freely named (e.g. honey). Any number of items can be added to each group, which can then be exported later in a table. Each group can be expanded by adding articles (see point 6.2 Adding articles). The groups can also be renamed or deleted. The groups created remain saved individually for each user and can be called up again at any time so that they can be re-evaluated at a later date.

6.2 Adding of articles

To add articles to an existing group, select the group and click on "dd article":

Enter the article or part of the term in the search field:

The hits achieved are accepted by clicking on them and can also be deselected.
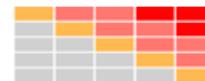
6.3   Grouping of articles

Due to the high number of notifications, it can be useful to combine individual articles into a group. These self-compiled groups simplify the query, as it is no longer necessary to process each individual article, but only the group once. However, this only makes sense for similar or identical articles. In the following example, the articles acacia honey, bloom honey with honeycomb, chestnut honey, eucalyptus honey, floral honey, forest honey, herbal honey, honey, honey in jars, linden honey, organic honey, pine tree honey, rosemary honey, thyme honey were grouped:

acacia honey , bloom honey with honeycomb , chestnut honey , eucalyptus honey , floral honey , forest honey , herbal honey , honey , honey in jars , linden honey , organic honey , pine tree honey , rosemary honey , thyme honey
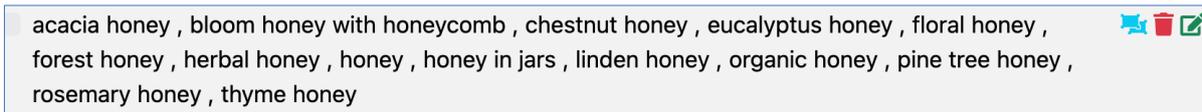
The grouping can be done either directly when creating the articles by selecting "as group":

Add article

⦿ As a single item   ◯ As a group

cancel   save
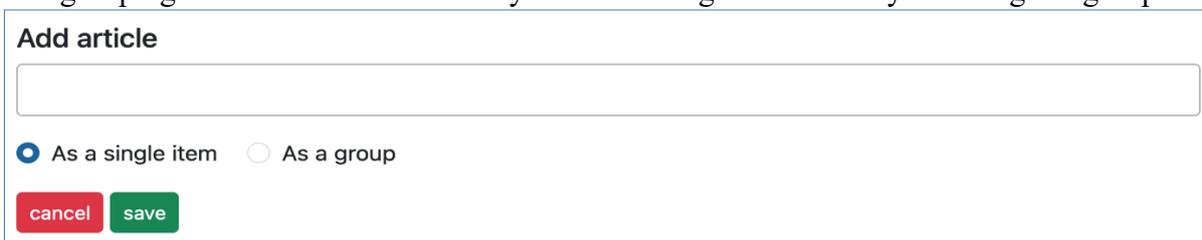
The grouping can also be removed:

Ungroup

acacia honey , bloom honey with honeycomb , chestnut honey , eucalyptus honey , floral honey , forest honey , herbal honey , honey , honey in jars , linden honey , organic honey , pine tree honey , rosemary honey , thyme honey

Articles selected as individual articles can also be grouped later on by selecting the corresponding articles and clicking on "Group selected":

☑ acacia honey
☐ bloom honey with honeycomb
☐ floral honey
☑ eucalyptus honey
☑ honey
☐ organic honey
☐ chestnut honey
☑ thyme honey
☐ forest honey

Group selected
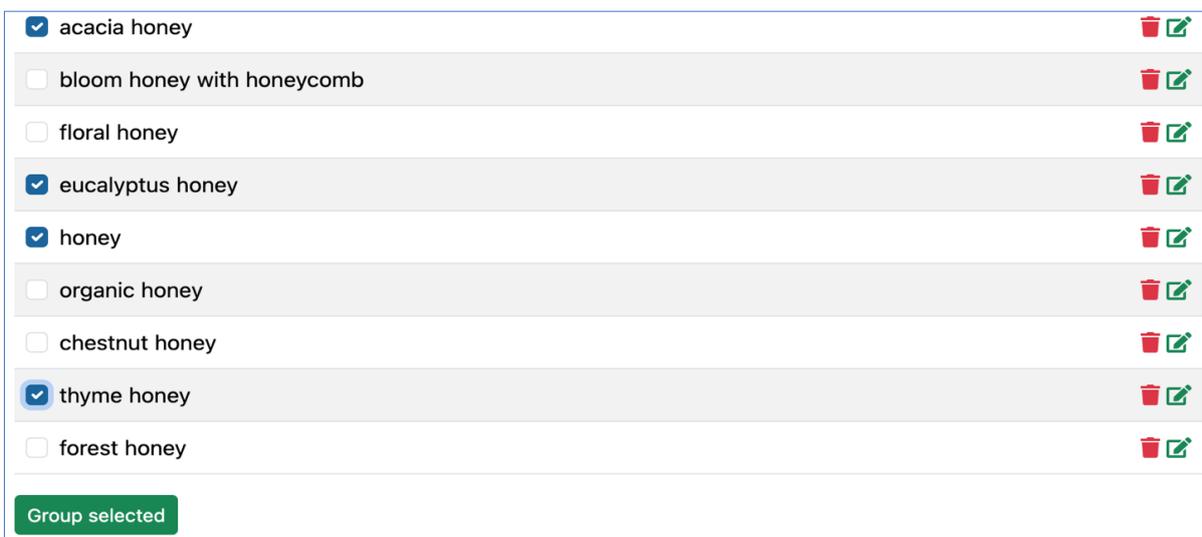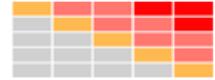
6.4 Copy a group (to HACCP Export, Test Plan or Food Fraud)

In the modules:

- HACCP Export
- Test Plan
- Food Fraud

the groups can be copied into the other modules. This saves time due to repeated entries. The name of the copied group is not changed. Only the word "Copy" is added. In the example below, the group "honey" was copied from the module HACCP Export to "Food Fraud Analysis":

6.5 Sharing a group (with other users in the same company)

For an efficient working in the company, groups can be shared with other users in the (own) company for use and editing.

In this example, the group "honey" has been shared with other users in the company by clicking on the button "Release group". The user who shared the group is informed by the note "shared", here "honey (shared)". The release can also be removed (Release -> Unshare).
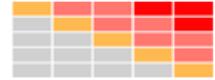
A released group can also be archived (Archive group). Once released, the group can be edited by authorized users. If desired, an archived group can therefore also be set to active again in order to restore the status prior to release.

The archived groups are displayed as "Archived" in the list field of the saved groups:
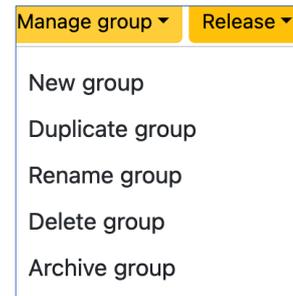
If a new group should be created on the basis of an existing group, the original group can be duplicated (button "Duplicate group"). The copied group can be renamed.
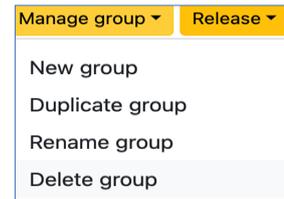
7   HACCP Export

In the "HACCP Export" module, an HACCP analysis for food, food contact materials or feed can be generated on the basis of all notifications in the database. After selecting the group or article (see also point 6 Selection and grouping of articles), you must specify:

- Whether the query is to be carried out for food, food contact materials or animal feed
- The period (for a meaningful audit plan, the period should be at least 5 years)

There are two options for the HACCP export:

a) Output "with all combined hazards" (see point 7.1):
   Here, all known hazards are summarized in a table.

b) Output "with individual hazards" (see point 7.2).
   Here, all known hazards for each selected foodstuff are displayed individually and displayed in a table:

To start the HACCP Excel export, please click on one of the following buttons.

Output option 1	Output option 2
Output with all combined hazards	Output with individual hazards
	Include the following hazards:
	☑ biological hazards
	☑ chemical hazards
	☑ physical hazards
	☑ allergenic hazards
	☐ food fraud / deception
	☐ miscellaneous

7.1 HACCP Export „with all combined "hazards" (Example)

With the query "With all combined hazards" in the "HACCP Export" module, it is possible to create a HACCP export on the basis of all notifications available in the database. During the query, all known hazards are summarized and displayed in a table).

In the first column of the Excel export article numbers (assigned by the company) can be entered. In the second column, the raw material for which the query was made is listed. The third column represents the known hazards with the number of notifications ("hits"). The division is done in such a way that all known hazards are displayed in a separate field. Multiple answers may be possible in this column if the hazards are named as combinations in different data records. Column four shows all countries of origin that are directly assigned to each hazard. Column 5 (RL 1) shows the risk class for the hazard in question (see also point 10 "Search": query for known hazards). Further explanations can also be found under item 10.4: "Result of search query (risk landscape)". Column 6 (RL 3) indicates the risk class in relation to the entire foodstuff and therefore this risk class is different from RL 1. In the last column "Corrective measures to control", the individual measures to control the hazard(s) can be entered according to HACCP based on Codex Alimentarius.

Below is shown an extract from the result of the HACCP query with all combined hazards for honey. The query covers the period from 01.01.2004 to 13.08.2024. The risk class E5 for honey results from the risk matrix (see also item 10.4: "Result of the search query (risk landscape)"):

HACCP PLAN
for articles
Safefood-Online GmbH 09/10/2024

Safefood-Online
Identify risks and increase opportunities

The data output has been limited: 01/01/2004 - 09/10/2024
Selection: Food
Group: honey

Art. Nr	Raw material / feed	Known hazards	Country of Origin	RL1	RL3	Corrective actions to control
	Group > acacia honey, bloom honey with honeycomb, chestnut honey, eucalyptus honey, floral honey, forest honey, herbal honey, honey, honey in jars, linden honey, organic honey, pine tree honey, rosemary honey, thyme honey	glass fragments [5]	Belgium [1], France [3], Germany [1]	E2		
		Bacillus cereus [1], Clostridium perfringens [1]	France [2]	E1		
		metal wires [1]	Türkiye [1]	E1		
		metal fragments [1]	United Kingdom [1]	E1		
		grayanotoxin [1]	Singapore [1]	E1		
		pyrrolizidine alkaloids [1]	Mexico [1]	E1		
		Paenibacillus spp. [1]	Germany [1]	E1		
		illegal improvement [2], presence of unauthorised chemicals [2]	New Zealand [2], Pakistan [2]	D2		
		presence of unauthorised chemicals [3]	Brazil [1], Pakistan [2]	D2		
		oxymatrine [2]	China [2]	D1		
		matrine [2]	China [2]	D1		
		allethrin [1], permethrin [1]	Croatia [2]	D1		
		dilution [1], presence of unauthorised chemicals [1]	Pakistan [2]	D1		
		novel food cannabidiol (CBD) [1], tetrahydrocannabinol (THC) [1]	Switzerland [2]	D1	E5	
		improper documents [1], unfit for human consumption [1]	Madagascar [2]	D1		
		ciprofloxacin [4], sulfadiazine [4], sulfamethoxazole [4], tetracycline [4], trimethoprim [4]	China [20]	C3		
		sulfathiazole [17]	Romania [2], Bulgaria [2], Ukraine [4], Portugal [4], Lithuania [2], Hungary [1], Italy [1], Mexico [1]	C3		
		streptomycin [16]	Poland [1], Spain [1], Mexico [5], Romania [3], Vietnam [3], India [1], Egypt [1], Argentina [1], China [1]	C3		
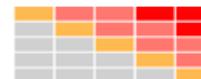
In this case, the query for honey results in "E5" and thus a critical risk, which is assigned to level 4. In the field "Corrective measures to control" the measures for each known hazard can now be entered individually.

The attached list with the recommended instructions for action should be an assistance to manage the identified risks for honey.

Risklevel	Recommended instructions
A1, A2, A3, A4 B1, B2, B3 C1, C2 D1	Level 1 The identified hazards are defined in the agreement / specification and must be excluded from the subcontractor in writing, so do not enter the hazard.
A5 B4 C3 D2 E1	Level 2 In addition to the agreement / specification requires the supplier for the goods delivered a certificate of analysis by an accredited laboratory to send it in confirming the adherence to the specified hazards or excluded.
B5 C4, C5 D3, D4 E2, E3	Level 3 In addition to confirm the information in stage 2, the supplier that this raw material / product do not come from the concerned country.
D5 E4, E5	Level 4 In addition to the steps 2 and 3, after delivery of the raw material sampled and analyzed this fixed in relation to the hazard (s) in an accredited la-boratory. The release of the raw material (food), done only once the analy-sis results as a positive release. Those suppliers are audited within a speci-fied timeframe (e.g. supplier audits).

The measures for the hazard "antibiotics: streptomycin" could look like this:

a. The specification contains a reference to the limit value of streptomycin
b. The supplier must submit a certificate of analysis from an accredited laboratory that the delivered goods are within the threshold.
c. The supplier must indicate the country of origin. The report also lists the countries in which streptomycin has been reported in the past.
d. After delivering, a representative sample is taken from the entire batch in order to have the sample analysed in an accredited laboratory. The sample is only released if the values for streptomycin are below the threshold. An active release should always take place, i.e., the raw material remains blocked for further use until the result of the analysis is available. As part of supplier management, a supplier audit should be scheduled and repeated at regular intervals.

Background information on streptomycin in honey
The antibiotic streptomycin is used today in particular to combat fire blight caused by bacteria (Erwinia amylovora) on pome fruit trees. Streptomycin is particularly effective against flower infections, which must be prevented in order to limit fire blight. Streptomycin obviously has the highest efficiency of all currently approved fire blight agents. The main entry of streptomycin occurs through direct hits by bees. In honey streptomycin is however nearly unlimited stable. Streptomycin is used under strict conditions. The use is only permitted to a limited extent during the flowering period and exclusively in fruit cultivation and in pome fruit stocks. The use must be documented. The threshold for streptomycin is 10 µg/kg. In 2008, in Germany especially in Baden-Wuerttemberg more than 50% of all tested samples have been above the threshold. The highest value was analysed with 114 µg/kg, i.e., 14 times higher. But also, from abroad (especially Mexico, Romania and Argentina) were coming goods above the threshold, which must be particularly observed. Several tons of honey and food made from it had to be destroyed.

Tip: It is recommended to analyse all hazards exactly via the query function so that they can be correctly evaluated after the HACCP export.
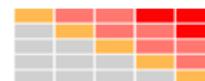
7.2 Example HACCP Export „with individual hazards"

With the query "With individual hazards" in the "HACCP Export" module, it is possible to create a HACCP export on the basis of all notifications available in the database. When queried, all hazards are **separated** and displayed in a table (see the example for honey).

Within the database there are currently six hazard categories:

Output option 2

Output with individual hazards

Include the following hazards:
- ☑ biological hazards
- ☑ chemical hazards
- ☑ physical hazards
- ☑ allergenic hazards
- ☐ food fraud / deception
- ☐ miscellaneous

The hazard categories listed under "Output option 2" are divided into the following sub-categories:

allergenic hazards	allergens
food fraud	radiation
	adulteration/ fraud
	GMO
	novel food
	composition
	labelling absent/ incomplete/ incorrect
	food additives, colours and flavourings
biological hazards	insects/ parasitic infestation
	non-pathogenic micro-organisms
	pathogenic micro-organisms
	TSEs
chemical hazards	hormones / residues of veterinary medicinal products
	biocontamination
	biotoxins
	chemical contamination
	migration
	mycotoxins
	pesticides
	radioactivity
	heavy metals
physical hazards	foreign bodies
miscellaneous	organoleptic aspects
	not determined / other
	poor or insufficient controls
	packaging defective / incorrect
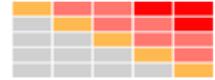
The positions 5 (Fraud/ Deception) and 6 (Miscellaneous) can be selected by placing a check mark.

In the first column of the Excel export the article numbers (assigned by the company) can be entered. In the second column, the raw material for which the query was made is listed. The third column lists the hazards with the number of notifications (hits). The division is done in such a way that all known hazards are displayed in a separate field. Multiple answers may be possible in this column if these hazards are named as combinations in different data records. Column four shows all countries of origin that are directly assigned to each known hazard. Column 5 (RL 1) shows the risk class for the hazard in question (see also item 10 "Search": Query for known hazards). Further explanations can be found under item 10.4: "Result of search query (risk landscape)". If the option "Output with individual hazards" is selected, a further risk class appears with RL2 (column 6). RL 2 determines the risk class for the group of the respective hazard category. In column 7 (RL 3), the risk class for the entire foodstuff is again indicated (the result can differ from risk class 1). In the last column "Corrective measures to control", the individual measures to control the hazard(s) can be entered according to HACCP based on Codex Alimentarius.

If there is no hazard, this is indicated in the analysis. These evaluations show conclusively that all potential hazards were considered. See the HACCP query with individual hazards for honey:
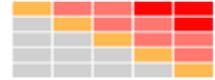
HACCP PLAN

for articles
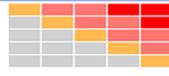
Safefood-Online GmbH 09/10/2024

Safefood-Online
Identify risks and increase opportunities

The data output has been limited: 01/01/2004 - 08/13/2024

Selection: Food

Group: honey

| Art.Nr	Raw material / feed	Known hazards	Country of Origin	RL1	RL2	RL3	Corrective actions to control
	Group > acacia honey, bloom honey with honeycomb, chestnut honey, eucalyptus honey, floral honey, forest honey, herbal honey, honey, honey in jars, linden honey, organic honey, pine tree honey, rosemary honey, thyme honey	**biological hazards**					
		insects / parasitic infestation					
		dead insects [1]	Ukraine [1]	B1			
		infested with insects [1]	Mexico [1]	B1			
		non-pathogenic micro-organisms					
		not known			E2		
		pathogenic micro-organisms					
		Bacillus cereus [1]	France [1]	E1			
		Clostridium perfringens [1]	France [1]	E1			
		Paenibacillus spp. [1]	Germany [1]	E1			
		TSEs					
		not known					
		chemical hazards				E5	
		biocontaminants					
		tetrahydrocannabinol (THC) [1]	Switzerland [1]	D1			
		biotoxins					
		grayanotoxin [1]	Singapore [1]	E1			
		pyrrolizidine alkaloids [1]	Mexico [1]	E1			
		chemical / industrial contamination					
		furazolidone (AOZ) [7]	Spain [1], Argentina [3], Türkiye [1], Vietnam [1], Ukraine [1]	C2			
		furaltadone (AMOZ) [2]	Italy [1], Argentina [1]	C1			
		1,4-dichlorobenzene [7]	Greece [3], New Zealand [4]	C2			
		nitrofurazone (SEM) [11]	India [2], Argentina [1], Hungary [3], China [1], New Zealand [2], United Kingdom [1], Ukraine [1]	C3			
		hydroxymethylfurfural (HMF) [4]	Hungary [1], Portugal [1], Ukraine [1], Slovakia [1]	C2			
		isoglucose [1]	India [1]	C1			
		heavy metals					
		not known					
		hormones / residues of veterinary medicinal products					
		ciprofloxacin [8]	Czech Republic [1], China [7]	C2			
		enrofloxacin [2]	Mexico [1], Argentina [1]	C1			
		trimethoprim [8]	Mexico [1], China [7]	C2			

At the end of the output list a Microsoft Excel-sheet gives in four-level recommendation list possible instructions for the selected article(s):

Risklevel	Recommended instructions
A1, A2, A3, A4 B1, B2, B3 C1, C2 D1	**Level 1** The identified hazards are defined in the agreement / specification and must be excluded from the subcontractor in writing, so do not enter the hazard.
A5 B4 C3 D2 E1	**Level 2** In addition to the agreement / specification requires the supplier for the goods delivered a certificate of analysis by an accredited laboratory to send it in confirming the adherence to the specified hazards or excluded.
B5 C4, C5 D3, D4 E2, E3	**Level 3** In addition to confirm the information in stage 2, the supplier that this raw material / product do not come from the concerned country.
D5 E4, E5	**Level 4** In addition to the steps 2 and 3, after delivery of the raw material sampled and analyzed this fixed in relation to the hazard (s) in an accredited la-boratory. The release of the raw material (food), done only once the analy-sis results as a positive release. Those suppliers are audited within a speci-fied timeframe (e.g. supplier audits).

All HACCP exports can also be archived as a file.
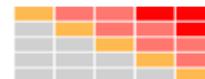
Tip: It is recommended to analyse all hazards exactly via the query function so that they can be correctly evaluated after the HACCP export.

With the output option "with individual hazards" it is possible to select only "food fraud/ deception". However, this query should not be used for Food Fraud Analysis, since in this case the questions of the Food Fraud module are not included. It is recommended to always use the Food Fraud module (see 10: "Food Fraud") for the Food Fraud Analysis:

Output option 2

Output with individual hazards

Include the following hazards:
☐ biological hazards
☐ chemical hazards
☐ physical hazards
☐ allergenic hazards
☑ food fraud / deception
☐ miscellaneous

8   Test plan

With the "Test plan" module, it is possible to create an individual test plan for articles and also for final products based on all the notifications available in the database. All hazards are summarized and displayed in a table. This module is helpful to create or optimize a company-specific test plan.

As for the HACCP Export and Food Fraud modules, the articles for the test plan must first be selected. (See 6: "Selection and grouping of articles for HACCP export, test plan and food fraud".

Dashboard

Search

HACCP Export

Evaluation

Test plan

Food Fraud

8.1   Example for a test plan

After selecting the group or the articles, it must be specified:

- whether the query is to be made for food, food contact materials or animal feed
- the period (for a meaningful test plan, the period should cover at least 5 years)

After that, the export can be started:

To start the export Test plan, please click on the button below.

Start export

The data is output as a Microsoft Excel file (see example). The hazards are displayed in such a way that a four-stage model is proposed after a calculation with a stored algorithm. The evaluation can change daily if new data is added to the queried items.
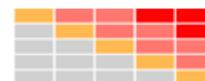
The evaluation makes suggestions for sampling and testing. This should be done for

(1) each consignment (corresponds to the **classification "critical risks")**
(2) every second delivery (corresponds to the **classification "unacceptable risks")**
(3) twice a year (corresponds to the **classification "conditionally acceptable risks")**
(4) once a year. (corresponds to the **classification "acceptable risks")**

TEST PLAN
for articles

Safefood-Online GmbH 09/10/2024

The data output has been limited: 01/01/2004 - 08/13/2024
Selection: Food, Food Contact Materials, Feed
Group: hazelnuts

| Group > hazelnut flakes, hazelnut flour, hazelnut paste, hazelnuts, organic hazelnut flour, organic hazelnuts	Sampling and testing			
	each delivery	every second shipment	twice per year	once per year
adulteration / fraud				
absence of certified analytical report				B2
absence of health certificate(s)				B2
adulterated Common Entry Document (CED)				B1
adulteration: undeclared almond			E1	
adulteration: undeclared cashew nut			E1	
adulteration: undeclared peanut		E2		
counterfeiting				B1
fraudulent health certificate(s)				B1
illegal import				B1
improper certified analytical report				B1
improper health certificate(s)				B3
allergens				
undeclared almond			E1	
undeclared cashew nut			E1	
undeclared mustard				B1
undeclared peanut			E1	
chemical / industrial contamination				
mineral oil aromatic hydrocarbons (MOAH) and mineral oil saturated hydrocarbons (MOSH)				C1
foreign bodies				
glass fragments			E1	
metal fragments			E1	
mouse			E1	
stones			E1	
wood pieces			E1	
insects / parasitic infestation				
dead insects				B1
infested with insects				B2
infested with insects (Plodia interpunctella)				B1
infested with insects (Tribolium confusum)				B1
infested with larvae of insects				B2
labelling absent/incomplete/incorrect				
incorrect labelling				A2
insufficient labelling				A1
missing identification code				A1
mycotoxins				
aflatoxins	D5			

The results are grouped according to the corresponding hazard categories. The list also shows the hazards occurred so far. The presentation of the results is only a proposal for test planning. The results are based on the valid RASFF data, which can be completed with data from the company.
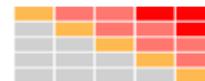
9 Food Fraud (a significant food safety risk)

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.

9.1 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" 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.
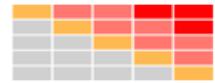
(2) Food Fraud Mitigation plan (Control plan):

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 8

Criterion 4.4.2 (purchase):
The purchased materials shall be assessed, based on risks and suppliers' status, for food safety, product quality, legality and authenticity. The results shall be the basis for the testing and monitoring plans.

Criterion 4.4.4 (purchase):
Where a part of the product processing and/or primary packing and/or labelling is outsourced, this shall be documented in the food safety and quality management system and such processes shall be controlled to guarantee that food safety, product quality, legality and authenticity are not compromised. Control of such outsourced processes shall be identified and documented. When required by the customer, there shall be evidence that they have been informed and have agreed to such outsourced process.

Criterion 4.4.6 (purchase):
Suppliers of the outsourced processes shall be approved through:
- *certification to IFS Food or other GFSI recognised food safety certification standard, or*
- *documented supplier audit, performed by an experienced and competent person, which shall include, at a minimum, requirements for food safety, product quality, legality and authenticity.*

Criterion 4.4.7 (purchase):
The sourcing of materials and supplier assessments shall be reviewed at least once within a 12-month period or whenever significant changes occur. Records of the reviews and the consequential actions of the assessment shall be documented.

Questions 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 5.6.1 (product testing and environmental monitoring):
Testing and monitoring plans for internal and external analyses shall be documented and implemented and shall be risk-based to ensure that product safety, quality, legality, authenticity and specific customer requirements are met. The plans shall cover a minimum of:
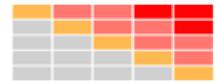
- *raw materials*
- *semi-finished products (if applicable)*
- *finished products*
- *packaging materials*
- *contact surfaces of processing equipment*
- *relevant parameters for environmental monitoring.*
  All test results shall be recorded.

Criterion 5.6.8 (product testing and environmental monitoring):
The testing and monitoring plans shall be regularly reviewed and updated, based on results, changes to legislation or issues that may have an impact on product safety, quality, legality and authenticity.

Linked to the requirements of criterion 5.6.8 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 4.20.1 (Food Fraud)
The responsibilities for a food fraud vulnerability assessment and mitigation plan shall be defined. The responsible person(s) shall have the appropriate specific knowledge.

Criterion 4.20.2 (Food Fraud)
A documented food fraud vulnerability assessment, including assessment criteria, shall be documented, implemented and maintained. The scope of the assessment shall cover all raw materials, ingredients, packaging materials and outsourced processes, to determine the risks of fraudulent activity in relation to substitution, mislabelling, adulteration or counterfeiting.

Criterion 4.20.3 (Food Fraud)
A food fraud mitigation plan shall be documented, implemented and maintained with reference to the vulnerability assessment, and shall include the testing and monitoring methods.

Criterion 4.20.4 (Food Fraud)
*The food fraud vulnerability assessment shall be reviewed, at least once within a 12-month period or whenever significant changes occur. If necessary, the food fraud mitigation plan shall be revised/ updated accordingly.*

Requirements from BRC Food, Version 9

5.4 Product authenticity, claims and chain of custody
Systems shall be in place to minimise the risk of purchasing fraudulent or adulterated food raw materials and to ensure that all product descriptions and claims are legal, accurate and verified.

Clause 5.4.1
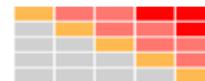
Where personnel are engaged in vulnerability assessments, the individual or team responsible shall understand potential food fraud risks. This shall include knowledge of raw materials used by the site and the principles of vulnerability assessment.

Clause 5.4.2
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*
- *activities completed for clause 1.1.8.*

Clause 5.4.3
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 reviewed annually or whenever there is:
- *a change in raw materials or a supplier of raw materials*
- *emergence of a new risk (e.g. known adulteration of an ingredient or developments in scientific information associated with authenticity of the site´s products or raw materials, for example, information obtained as part of clause 1.1.8*
- *following a significant product safety incident (e.g. a product recall) where the authenticity of the site´s products or raw materials is implemented.*

Clause 5.4.4
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.

Clause 5.4.5
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.*
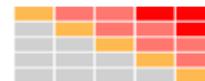
The facility shall maintain purchasing records, traceability of raw material usage and final product packing records to substantiate claims. The site shall undertake documented mass balance tests at a frequency to meet the particular requirements of any scheme it is certified to, or in the absence of a scheme-specific requirement, at least one mass balance test every 6 months.

Clause 5.4.6
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.

Clause 5.4.7
Where a product is designed to enable a claim to be made, the company shall ensure that all claims are substantiated, and product formulation and the production process are fully validated to meet the stated claim and any legal requirements (in the country of intended sale) relating to the claim.
The process flow (see clause 2.5.1) 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.

Scheme requirements from ISO 22000 and Part 2: Requirements for the organizations to be audited

2.5.4 Food Fraud Mitigation (all food chain categories)

2.5.4.1 Vulnerability Assessment
*The organisation shall:*
a) *conduct and document the food fraud vulnerability assessment, based on a defined methodology, to identify and assess potential vulnerabilities; and*
b) *develop and implement appropriate mitigation measures for significant vulnerabilities. The assessment shall cover the processes and products within the organization´s scope.*

2.5.4.2 Plan
a) *The organization shall have a documented food fraud mitigation plan based on the output of the vulnerability assessment, specifying the mitigation measures and verification procedures.*
b) *The food fraud mitigation plan shall be implemented and supported by the organization´s FSMS.*
c) *The plan shall comply with the applicable legislation, covert he processes and products within the scope of the organization, and kept up to date.*
d) *For food chain category FII, in addition to the above, the organization shall ensure that its suppliers have a food fraud mitigation plan in place.*

Conclusion:
There are of course many options for a risk assessment and to define corresponding control measures to be implemented in the company in order to mitigate this risk. With 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.
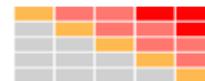
Remark:
With output option 2 (output with individual hazard categories) in the "HACCP Export" module (see also 7.2), it is possible to select only "Food Fraud". This query should not be used for Food Fraud analysis, since in this case the questions of the Food Fraud module are not taken into account. 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)
- **Food additives, colours and flavourings** (illegal addition or incorrectly labelled food)
- **Composition** (e.g., admixtures in the recipe or directly to the food)
- **Labelling** (e.g., incorrect labelling or fraudulent health certificates)

9.2   Vulnerability assessment Food Fraud
After selecting the group or article (see also point 6 Selection and grouping of articles), you must specify:

- Whether the query is to be made for food, food contact materials or animal feed
- The time period

The export can then be started.

Dashboard
Search
HACCP Export
Evaluation
Test plan
Food Fraud Analysis

To start the Food Fraud analysis, click on the button below.

Start food fraud analysis
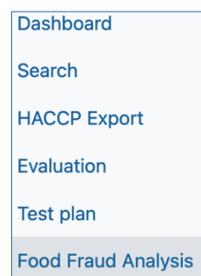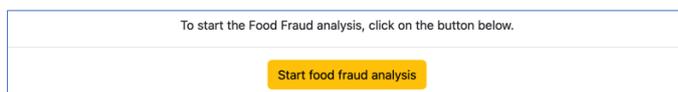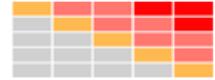
9.2.1 Vulnerability assessment example

9.2.1.1 Questions regarding likelihood of occurrence: example 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.

Show details

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 <u>country of origin</u> 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] [× Türkiye]   ✕

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.

Details of the hazards can be displayed for question A 1/4:
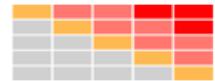
Known hazards	Country of Origin
adulteration / fraud	
counterfeiting [1]	Italy [1]
improper health certificate(s) [20]	Türkiye [18], Azerbaijan [2]
absence of health certificate(s) [7]	Türkiye [5], Serbia [1], Russia [1]
illegal import [1]	Türkiye [1]
adulterated Common Entry Document (CED) [2]	Türkiye [2]
absence of certified analytical report [2]	Türkiye [2]
adulteration: undeclared peanut [1]	Georgia [1]
fraudulent health certificate(s) [2]	Türkiye [2]
improper certified analytical report [2]	Azerbaijan [2]
labelling absent/incomplete/incorrect	
incorrect labelling [2]	Italy [1], Türkiye [1]
insufficient labelling [2]	Türkiye [2]
missing identification code [1]	Türkiye [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).

For each question an answer must be clicked before proceeding to the step likelihood of detection:
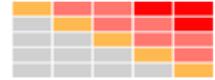
9.2.1.2 Questions regarding likelihood of detection: example hazelnuts

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.

  Because 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.

  Because 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.

All questions must also be answered by clicking on them. The food fraud export can then be started as a Microsoft Excel file:

hazelnuts

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

Start FOOD Fraud Analysis Excel-Export
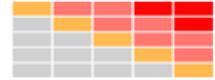
9.2.1.3 Evaluation using a Microsoft Excel spreadsheet

After the query is done a Microsoft Excel file with 4 sheets is opened:

9.2.1.4 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 Results
for articles
Safefood-Online GmbH 09/11/2024

The data output has been limited: 01/01/2004 - 08/13/2024
Selection: Food, Food Contact Materials, Feed
The number of reported incidents is based on the above selection
Group: hazelnuts
Are there outsourced processes? Are packaging materials included?

Name of the group	Selected article	Supplier
hazelnuts	hazelnuts	

Food Fraud results: questions regarding likelihood of occurrence:

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?				
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.
				x					x

| 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?				
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 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.
Azerbaijan, Georgia, Italy, Türkiye	56	71,5				x						x

Tip: if there are several countries of origin (as in the example selected), the cell in the table is too small. In this case, simply edit the cell and select "Wrap Text": all entries (countries) are then displayed.

Food Fraud results: questions regarding likelihood of 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?				
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.
x						x			

| 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?				
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			

9.2.1.5 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 food fraud analysis. The 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 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 occurrence:
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.
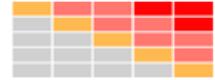
Likelihood of detection
field A: sure
field B: probably
field C: quite likely
field D: rather rare
field E: unlikely

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

FOOD FRAUD Vulnerability Assessment
for articles
Safefood-Online GmbH 09/11/2024

The data output has been limited: 01/01/2004 - 08/13/2024
Selection: Food, Food Contact Materials, Feed
Group: hazelnuts

Likelihood of occurrence		sure A	probably B	quite likely C	rather rare D	unlikely E
	often 5		hazelnuts			
	possible 4					
	rarely 3					
	very rare 2					
	unlikely 1					
Copyright Dr. Bernhard Mueller Safefood-Online GmbH				Likelihood of detection		

For the classification rules see 9.3.
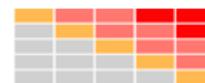
9.2.1.6 Sheet 3: Mitigation plan

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

FOOD FRAUD Mitigation Plan
for articles
Safefood-Online GmbH 09/11/2024

Safefood-Online
Identify risks and increase opportunities

The data output has been limited: 01/01/2004 - 08/13/2024
Selection: Food, Food Contact Materials, Feed
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?	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	

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.

9.2.1.7 Sheet 4: Food Fraud Incidents:

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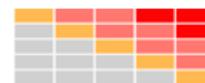
FOOD FRAUD incidents

for articles

Safefood-Online GmbH 09/11/2024
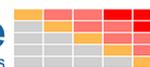
The data output has been limited: 01/01/2004 - 08/13/2024

Selection: Food, Food Contact Materials, Feed

Group: hazelnuts

Art.Nr	Raw material / feed	Known hazards	Country of Origin
	hazelnuts	food fraud / deception	
		radiation	
		not known	
		GMO	
		not known	
		novel food	
		not known	
		adulteration / fraud	
		counterfeiting [1]	Italy [1]
		incorrect labelling [1]	Italy [1]
		improper health certificate(s) [20]	Türkiye [18], Azerbaijan [2]
		illegal import [1]	Türkiye [1]
		absence of health certificate(s) [6]	Türkiye [4], Serbia [1], Russia [1]
		adulterated Common Entry Document (CED) [2]	Türkiye [2]
		absence of certified analytical report [2]	Türkiye [2]
		adulteration: undeclared peanut [1]	Georgia [1]
		fraudulent health certificate(s) [2]	Türkiye [2]
		improper certified analytical report [2]	Azerbaijan [2]
		food additives, colours and flavourings	
		not known	
		composition	
		not known	
		labelling absent/incomplete/incorrect	
		insufficient labelling [2]	Türkiye [2]
		incorrect labelling [1]	Türkiye [1]
		missing identification code [1]	Türkiye [1]

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

The applicable rules for the questions on the likelihood of occurrence (questions A 1 - A 4) and the likelihood of detection (questions E 1 - E 4) are listed under point 09.3.

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.

Tip:
It is recommended to analyse all results accurately so that they can be evaluated correctly after the Food Fraud Export.
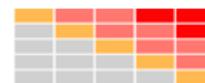
9.3 Rules regarding the questions

9.3.1 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.
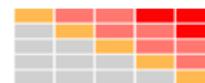
Question A 3/4

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 safe-food-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 non-transparent 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.

9.3.2 Rules regarding the questions to the likelihood of occurrence (Question 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.
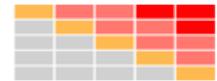
Question E 2/4

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 material 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 re-assessed 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 re-assessed 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 re-assessed 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.

10   Search: Query for known hazards

Safefood-Online
Identify risks and increase opportunities
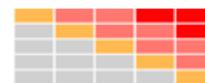
The query for known hazards is carried out under the menu item "Search". A range of search functions are available to selectively search for notifications. Data from individual or multiple product categories and/or hazard categories can also be selected. The query can be carried out with all available notifications or can be restricted by only selectively accessing the notifications for "food", "feed" and/or "food contact materials". The results are displayed in a risk matrix.

10.1   Search query (AND)

Please enter the terms so that they are separated only by a space (without comma or semicolon). The search query (AND) only searches for records that contain all the terms you have entered (including parts of them).

SAFEFOOD-ONLINE searches for matches in the fields "product category, article, hazard category, hazard, country of origin, and year. Only records where all entered terms are present will be displayed. The more terms are combined, the more selective the result will be. At least one term must be entered in the search query "AND".

Examples:

a) Salmonella napoli 2009:

The search query "salmonella napoli 2009" contains all terms in the displayed records:

b) Rabbit Meat:

The search query "rabbit meat" gives the term "rabbit meat" as well as all combinations in which the two search terms "rabbit" and "meat" are contained:
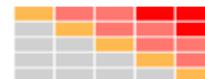
☑	2017	unauthorised substance norfloxacin (>2.2 µg/kg - ppb) in frozen rabbit meat from China	rabbit meat	norfloxacin	Details: 2017BVB
☑	2017	unauthorised substance ofloxacin (> CCalpha) in frozen rabbit meat from China	rabbit meat	ofloxacin	Details: 2017BTM
☑	2017	unauthorised substance ofloxacin (> CCalpha) in frozen rabbit hind legs from China	rabbit meat	ofloxacin	Details: 2017BJW
☑	2017	tulathromycin (1000 µg/kg - ppb) unauthorised in frozen rabbit meat from Belgium	rabbit meat	tulathromycin	Details: 20170562

c) "soya":

If the search term is placed in quotation marks, only exactly this term is searched for (upper and lower case is not to be considered thereby). The search covers the complete contents of the database.

Search (AND) ⓘ	Period		
"soya"	01.01.2003	to	08.11.2023

In the "rabbit" example, the term "soya" was found in the "Description" field, for example:

☑	2019	gluten, sesame oil, soya and mustard undeclared on noodles with beef and soy sauce incorrectly packaged as noodles with shrimps and curry from the Netherlands	noodles with beef and soy sauce	undeclared gluten, undeclared mustard, undeclared sesame, undeclared soybean	Details: 20190926

TIP:
It is recommended not to limit the search too closely in the first step, otherwise different spellings will not be considered. It may happen that certain terms are written in German and then in English. However, you can also select from the list boxes (Add selection) in which all terms from all datasets are always up-to-date:

Add selection: | Hazard | Country of Origin | Article |

Further limitations are possible through:

- product category (all or only selected product categories)
- hazard category (all or only selected hazard categories)
- Food and/or food contact and/or animal feed
- Search in all fields of the dataset or only in the field "article"

In the field "Output" the grouping of the data records can be controlled by:
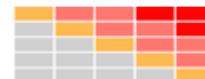
- hazard
- country of origin
- year
- article

10.2 Search query (OR)

Please enter the terms so that they are separated only by a space (without comma or semicolon). The search query (OR) displays all data records that contain at least one of the entered terms. SAFEFOOD ONLINE searches for matches in the fields "Product category, Hazard source, Country of origin, Article and Year.

Example:
a) Chromium Lead Mercury:

Search (OR) ⓘ

chromium lead mercury

The data sets displayed contain either the terms chromium, lead or mercury:

☑	2022	Mercury: 1.9 ± 0.6 mg/kg - ppm level too high in swordfish from Spain	swordfish (Xiphias gladius)	mercury	Details: 20227278
☑	2022	Packaging with wrong information capable of misleading the consumer	curry powder	incorrect labelling	Details: 20227188
☑	2022	Gymnema sylvestre and too high content of chromium in food supplement from Spain	food supplement	chromium, novel food Gymnema syvestre	Details: 20227127
☑	2022	Lead: 0,2 mg/kg - ppm and 0,33 mg/kg - ppm and 0,68 mg/kg - ppm in blackberries from Portugal	blackberries	lead	Details: 20226982

TIPP:
It is recommended not to limit the search too closely in the first step, otherwise different spellings will not be considered. It is possible that certain terms are present once in German and then e.g., in English. However, you can also select from the list boxes (Add selection) in which all terms from all datasets are always up-to-date:

Add selection: [Hazard] [Country of Origin] [Article]
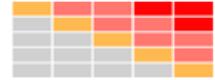
Further limitations are possible:

- product category (all or only selected product categories)
- hazard category (all or only selected hazard categories)
- Food and/or food contact material and/or animal feed
- Search in all fields of the dataset or only in the field "article"

In the field "Output" the grouping of the data records can be controlled by:

- hazard
- country of origin
- year
- article

10.3   Search query (Exclude)

You can also use the "Exclude" field to restrict the search further. Terms entered here are excluded from the search (if several terms are entered, they are only separated by spaces).

10.4   Result of the search query (risk landscape)

The results are calculated and assigned to a field from A1 to E5 in a risk matrix. The search query "pear" gives the following result:
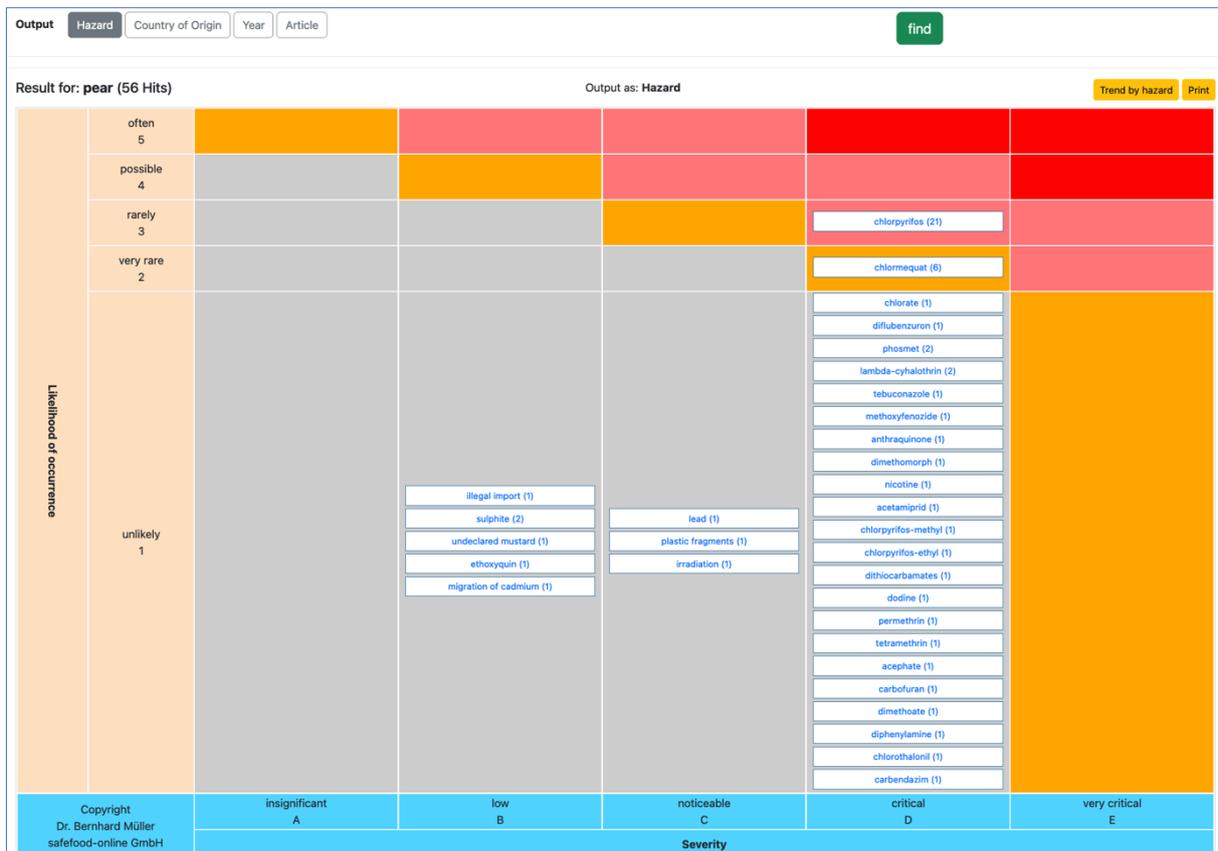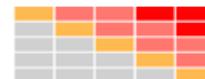
The grading of the likelihood of occurrence from unlikely to often (1 - 5) is based on the number of notifications for the respective hazard in the database. For the classification of the impact of the hazards, see point 10.5 "Impact (severity) of the hazards". For orientation purposes, the number of hits is also indicated in the output. The possible classification in the risk matrix therefore ranges from A1 to E5. Empty fields mean that no risk has been determined due to missing data.

It is recommended that you regularly call up the data from SAFEFOOD-ONLINE. This is the only way to ensure that the data is up to date. An attached list shows all notifications. Click on "Details" to call up all available information on the notifications: An attached list shows all available details (excerpt):

Show	Year ↓	Description	Article	Hazard	
☑	2024	Chlorate: 2,2 mg/kg - ppm in fresh pears from Belgium	pears	chlorate	Details: 20244426
☑	2024	Diflubenzuron: 0,02 mg/kg - ppm in pears from Türkiye	pears	diflubenzuron	Details: 20243667
☑	2024	The authorities seized 300 tons of polish pears ready to be smuggled from Belarus to Russia (total value of 64 570 Euros). In some cases the drivers failed to present the relevant traceability documents, in others the pears were disguised as green peas, dry cereals or flakes.	pears	illegal import	Details: _JRC 2024_03.03
☑	2024	Pesticide residues of phosmet: 0,019 mg/kg - ppm in pears from Türkiye	pears	phosmet	Details: 20241963
☑	2024	Lambda-cyhalothrin: 0.121 mg/kg - ppm and tebuconazole: 0.332 mg/kg - ppm in pears from Spain	pears	lambda-cyhalothrin, tebuconazole	Details: 20241862
☑	2024	Exceed MRL of methoxyfenozide: 0.075+/-0.038 mg/kg - ppm in pears from Türkiye	pears	methoxyfenozide	Details: 20240700

The notifications can be sorted by year, description, article and hazard in ascending or descending order. Individual notifications can also be hidden. Then click on the "Update" button at the end of the table.

The risk assessment should include all internally available information in the overall assessment, such as internal findings of the incoming goods inspection and own or known incidents. The internal evaluation of all external notifications from customers, suppliers or official complaints is also important. Practical examples show how useful it is to evaluate all available information in order to assess possible risks. This information shows the company the results of the selected scenarios, which must now be interpreted individually.
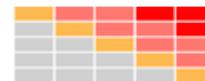
10.5 Effect (Severity) of the hazards

The classification of the impact of the hazards is based on the EU Commission's Notice "on the implementation of food safety management systems covering prerequisite programs (PRPs) and procedures based on the HACCP principles, including the facilitation/ flexibility of the implementation in certain food businesses" (2016/C278/ 01):

A:	insignificant	no immediate problem due to the food itself; quality aspects; legal aspects (labelling – except allergen labelling).	**The hazard can never reach a dangerous concentration.**
B:	low	There is no problem for the consumer related to food safety (nature of hazard).	**The hazard can never reach a dangerous concentration.**
C:	low	No serious injuries and/ or symptoms or only when exposed to an extremely high concentration during a long period of time.	**A temporary but clear effect on health.**
D:	critical	A clear effect on health with short-term or long-term symptoms which results rarely in mortality	**The hazard has a long-term effect; the maximal dose is not known.**
E:	very critical	The consumer group belongs to a risk category and the hazard can result in mortality	**The hazard results in serious symptoms from which mortality may result. Long-term health damage**

The table below shows an example of how the hazard categories are assigned to impact A - E (severity):

very limited A	limited B	moderate C	serious	very serious E
labelling absent/ incomplete/ incorrect (other than allergen labelling)	allergens: allergic reaction, incorrect allergen labelling, cereals containing gluten, crustaceans, eggs, fish, milk, mustard, sulphur dioxide, lupin, molluscs	hormones/ residues of veterinary products	biocontaminants	allergens: nuts, peanuts
organoleptic aspects: abnormal smell, taste, colour	adulteration/ fraud: analytical report, health certificate(s), labelling (absence), with horse meat, urea, cow milk, carbon monoxide treatment	GMO	TSE	adulteration/ fraud: with nuts, peanuts or pathogenic micro-organisms
not determined/ other: unknown hazard, incorrect dosing scoop	food additives and flavourings	radiation: irradtion, radioactivity	mycotoxins	biotoxins
	novel food	heavy metals	pesticide residues	pathogenic micro-organisms
	insects/ parasitic infestitaton	foreign bodies (without direct risk for health): fies, spider eggs, stubs, sythetic fibres	adulteration/ fraud: unfit for human consumption, presence of unauthorized chemicals	foreign bodies (with direct risk for health): drugs, glass fragments, stones, lead, asbestos, splinters, thorns, metal, bone fragments, ceramic pieces, suffocation, granules, mouse, poisonous spider
	migration	chemical contamination	composition: vitamin A	
	non-pathogenic microorganisms	allergens: celery, sesame seeds, soybeans		
	organoleptic/ other: numbness	adulteration/ fraud: sawdust, incubated		
	packaging defective/ incorrect: corrosion, packaging defective, bulging packaging			
	composition			
	poor or insufficient controls: poor temperature control, inadequate heat resistance, excessive humidity, insuitable transport conditions			
very limited A	limited B	moderate C	serious	very serious E
effect (severity)				

At the beginning of the risk matrix, trend statistics can be created in addition to the query:

Result for: **pear** (56 Hits)   Output as: **Hazard**   [Trend by hazard] [Print]

The results can be displayed either by year or, after clicking on "Select more details", by month or day:

Trend by hazard ✕

Please select the desired time period: 2014 ⌄ – 2024 ⌄   [Select more details]

[close] [submit]

Depending on the output selected:

Output [Hazard] [Country of Origin] [Year] [Article]

the trend statistics can be generated by hazard source, year, country of origin or article.
Below is the trend by country of origin for the search query "pear" (from point 10.4):
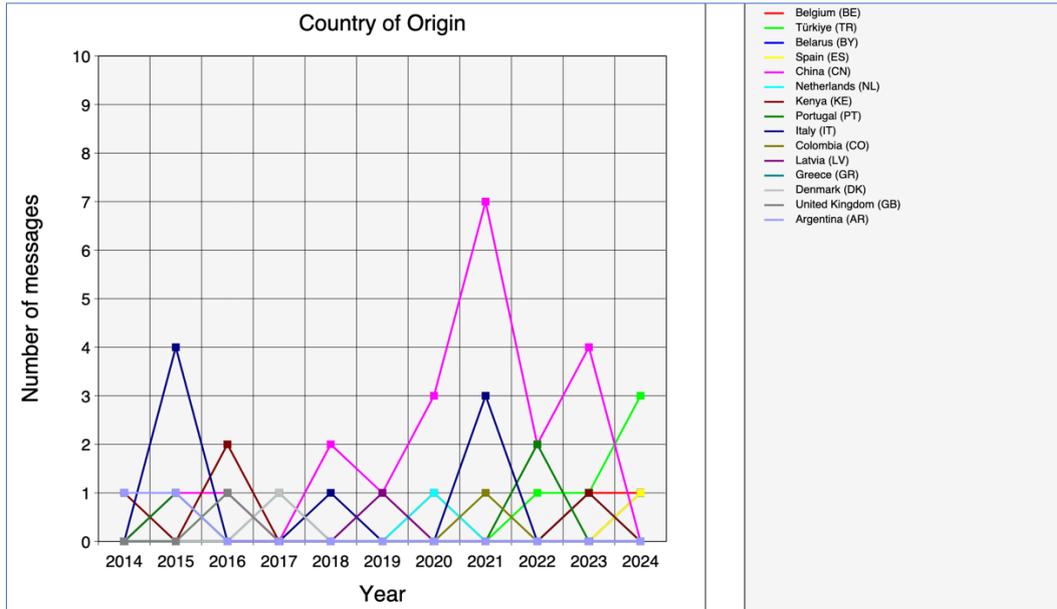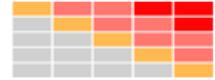
10.6 Printing the risk matrix

The risk matrix can also be printed:

Depending on the selected browser, it may happen that the selected printout is not in colour. Please check and correct the printer settings of your browser:

Microsoft Edge:
Enable the Print background colors and images option.
Chrome:
Select "Print -> "Further settings" and check the box "Background graphics".

Firefox:
Select "File" -> "Print" and check the boxes for "Print background colours and background images".

Opera:
Select "File"- > "Print" -> "More options" and check the option "Background graphic".
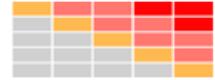
11   Adding and evaluating own files

In the "My data" module, SAFEFOOD-ONLINE offers the option of entering company-specific information:

By pressing the "Add new data" button, the user can enter own data:

The self-entered data (e.g. own findings from the goods receipt notifications or complaints) are available to all participants of the assigned user group (= name of the company) after login and can be included in the evaluation. Other participants from other user groups do not have access to the data and cannot see the notifications entered by other participants. Every company can work with all available SAFEFOOD-ONLINE data and also incorporate internal company findings.
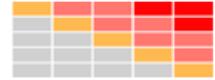
12   Monitoring hazards using a watch list

SAFEFOOD-ONLINE contains notifications for a large number of articles. With a self-created "Watchlist", it is possible to call up only the latest notifications on product categories used by the company.
To open the watchlist, click on "Watchlist" in the left sidebar. To create a new watchlist or edit an existing one, click on "Edit watchlist":

Show watchlist   `Edit watchlist`

A list opens with all the product categories contained in SAFEFOOD-ONLINE. Product categories can be individually selected or deselected. This profile remains saved after the selection and can be used for the next query.
The selected product categories are listed under "Watchlist categories". By clicking on "Show all" (first LINK within the watchlist categories), the notifications of all product categories included in the watchlist are displayed. It is also possible to display only the notifications of individual product categories.
All notifications from the past 90 days (calculated from the date of the notification) are listed grouped according to the selected product categories. By constantly updating and expanding the data, it is ensured that the risk landscapes always contain the latest findings on food safety.

Below is an excerpt from the watchlist:

Sidebar:

Map
Profile
Watch list
My Data
Logout

Watchlist categories

Show all

cereals and bakery products

cocoa and chocolate products, coffee and tea

confectionery

crustaceans and products thereof

fats and oils

food additives, flavourings and enzymes

Safefood-Online
Identify risks and increase opportunities
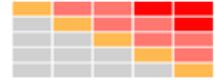
Indicated Category: **All of the Watch List**

| Frequency distribution | Trend of the categories |

Period of time: 12 . 08 . 2024 – 12 . 09 . 2024 ok

ℹ️
From the selected watchlist

INFO: There will be max. 90 days included

Newly added since your last login messages are highlighted in yellow, "Personal data" are marked in red

Show only new

Export new as a PDF   **Export new as a EXCEL**

Export selection (period) as a PDF   **Export selection (period) as a EXCEL**

---

cereals and bakery products

Date	Message	Description	Article	Hazard	Country of Origin	
08/14/2024	Germany	Acetamiprid in basmati rice from Pakistan	basmati rice	acetamiprid	Pakistan	Details: 20246212
08/13/2024	Germany	Foreign body (metal wire) in ice cream cones from Bosnia-Herzegovina	ice cream cones	metal wires	Bosnia and Herzegovina	Details: 20246199
08/13/2024	Spain	Arsenic levels above the established limits in white rice from Thailand via the Netherlands	white rice	arsenic	Thailand	Details: 20246198
08/13/2024	Sweden	Cookies contaminated with whole almonds	cookies	undeclared almond	Italy	Details: 20246195
08/12/2024	France	Imidacloprid in rice from Pakistan	rice	imidacloprid	Pakistan	Details: 20246164

cocoa and chocolate products, coffee and tea

Date	Message	Description	Article	Hazard	Country of Origin	

There are no entries in the selected period

confectionery

Date	Message	Description	Article	Hazard	Country of Origin	

Trend statistics or a frequency distribution of hazards are available for product categories. This makes it possible to identify trends that are included in the assessment as part of risk management.

Show watchlist

Indicated Category: **All of the Watch List**

Period of time: 16 . 08 – 16 . 09 . 20 ok

| Frequency distribution |
| Trend of the categories | ℹ️

INFO: There will be max. 90 days included

From the selected watchlist

13 Dashboard

13.1 Selecting the Dashboard modules

After selecting "Dashboard" in the left sidebar, you can configure a graphical evaluation of the following parameters:

- notifications
- product categories
- hazard categories
- product category for selected hazard categories
- hazard categories for selected product categories
- trend analysis article
- trend analysis hazard source
- trend analysis country of origin

Dashboard
Search
HACCP Export
Evaluation
Test plan
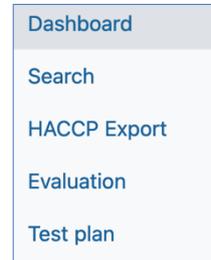
The charts can be added by clicking on "+add module":

Dashboard ⓘ   + Add module

Select the modules in the following window:

Add module   ✕

Notifications
Evaluation product category
Evaluation hazard category
Hazard category for selected product categories
Product category for selected hazard categories
Trend analysis ARTICLE
Trend analysis HAZARD SOURCE
Trend analysis COUNTRY OF ORIGIN

close
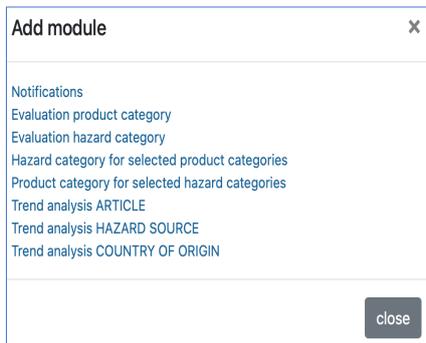
The display of the modules can be customized as follows:

The modules can also be displayed enlarged (as a full screen):

Fullscreen ⤢ ✛ ▭ ⌃

Individual modules can also be deleted:

move ✛ ▭ ⌃

The order of the modules can be changed by moving them:

delete ▭ ⌃

Modules can also be shown/hidden:

⚙ show/hide ⌃
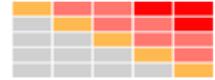
13.2 Notifications

The following parameters can be selected for the graphic display of the messages:

- Period
- Food and/or food contact materials and/or feed materials
- Watchlist notifications or all notifications
- Notifications in total or grouped according type of notification

After defining the parameters, the number of notifications is displayed as a bar chart. With the "Details" parameter, the number of messages is displayed as a bar chart grouped according to the following notification types:

- alert notification
- border rejection notification
- information
- message

All notifications, in total:

Notifications grouped according type of notification:
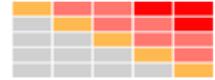
13.3 Evaluation product category

The following parameters can be selected:

- Period
- Chart: line or bar or bar chart in percent

The number of notifications is based on the selected product categories in the watchlist.
The product categories can be removed or added by a mouse click on the product categories.

Evaluation product category, shown as "line":
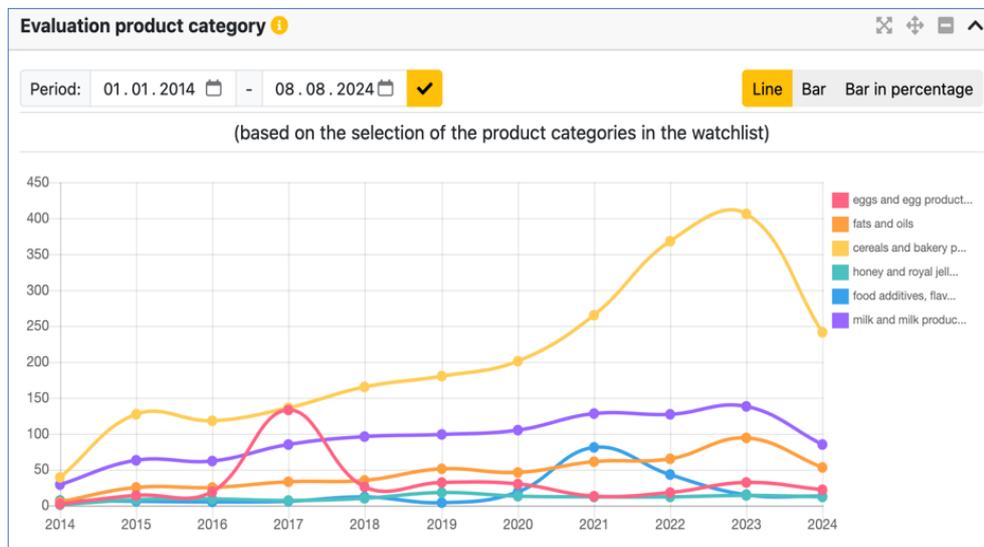
Evaluation product category, shown as "bar in percentage":
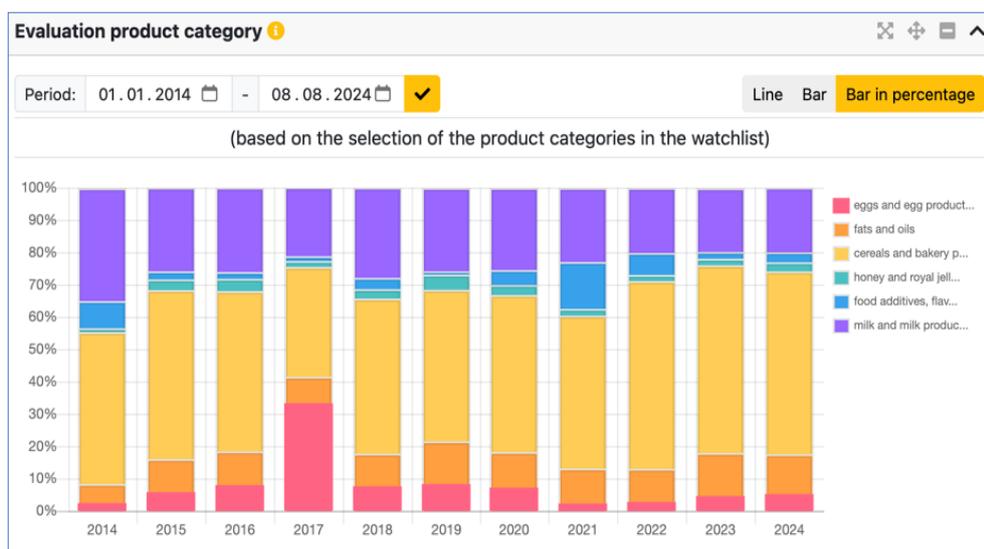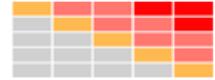
13.4 Evaluation hazard category

The following parameters can be selected for the graphic display of notifications according to hazard categories:

- Period
- All hazard categories or only Food Fraud
- Chart by percentage or number

The number of notifications is based on the selected product categories in the watchlist. The hazard categories can be removed or added by a mouse click:

Evaluation hazard categories, shown for all hazard categories and notification in percent:
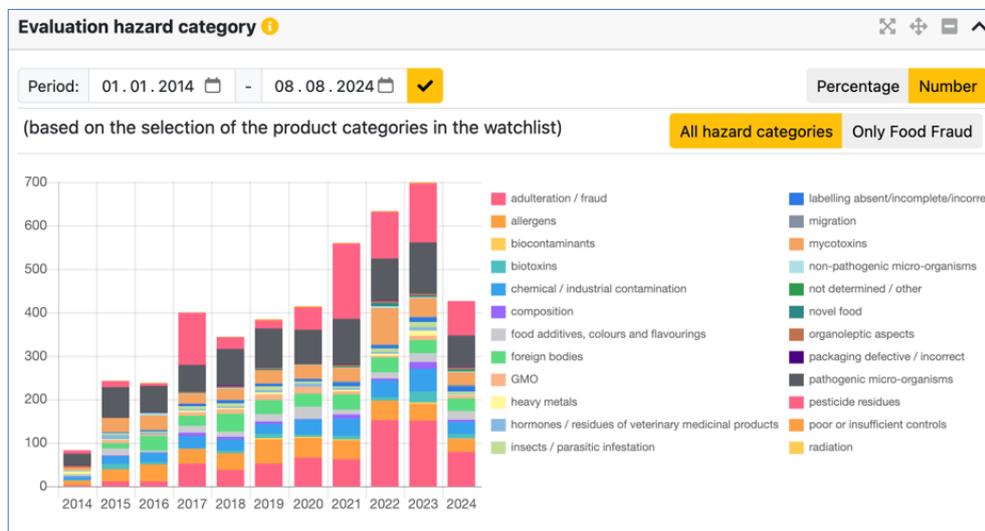
Evaluation hazard categories, shown for all hazard categories and number of notifications:
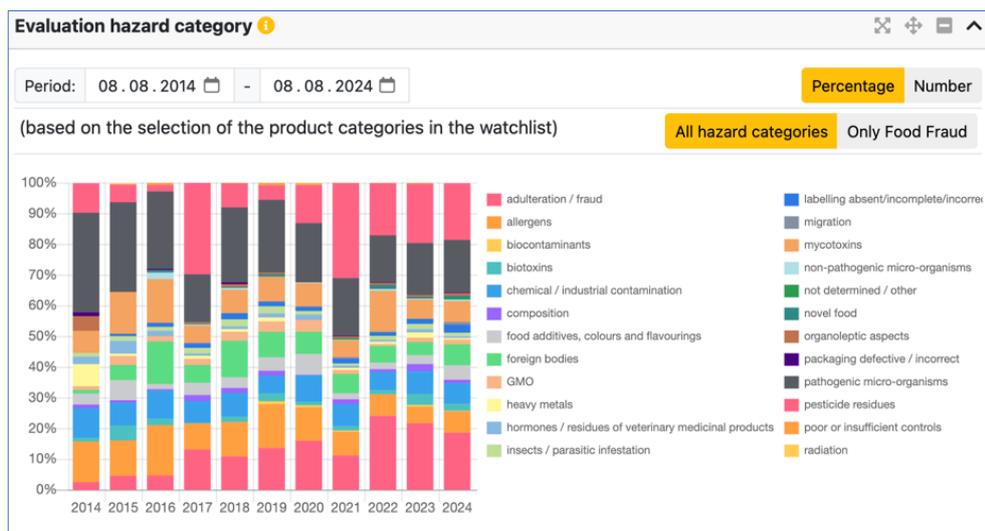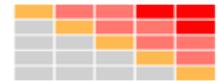
13.5   Hazard category for selected product categories

Here, the desired product categories are first selected by clicking on the "cogwheel
symbol". In addition, the query can be customized by selecting:

- Period
- All hazard categories or only Food Fraud
- Chart by percentage or number

Hazard category for selected product category as Number:
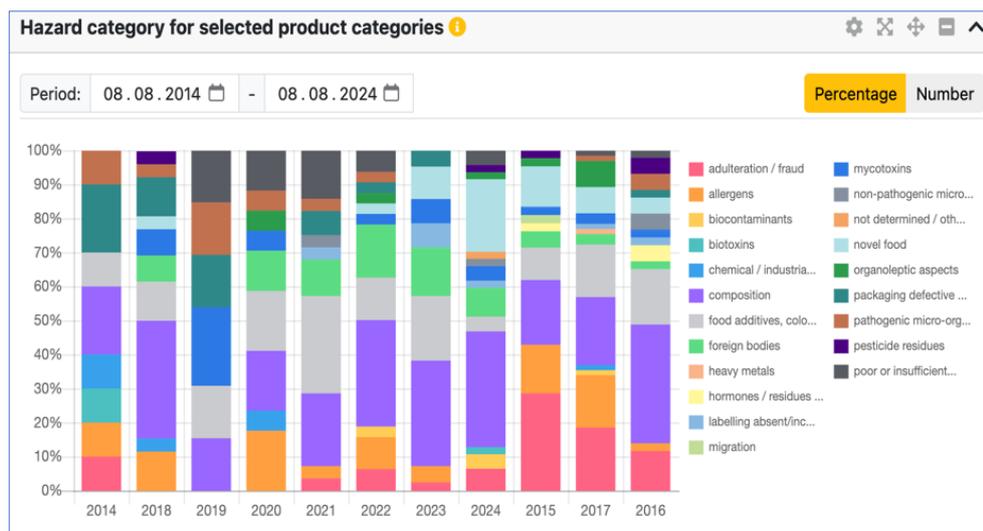
Hazard category for selected product category by percentage:
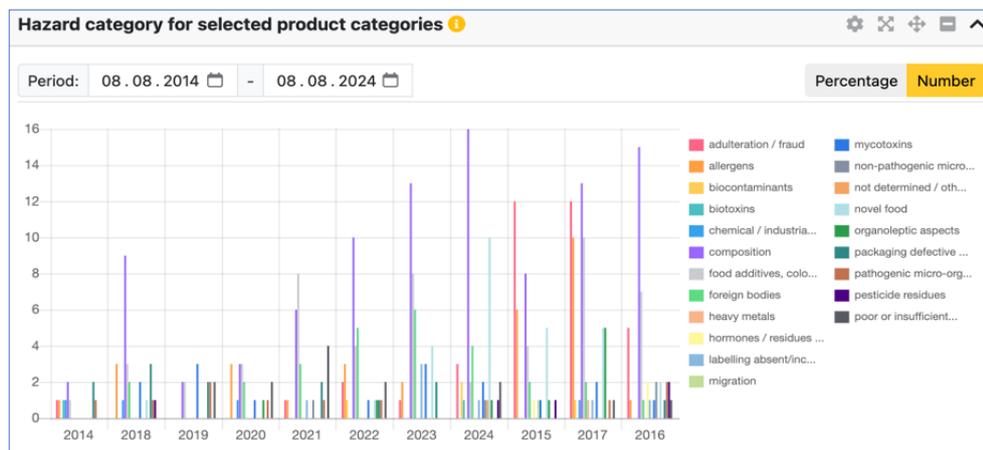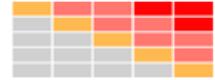
13.6 Product category for selected hazard categories

Here, the desired product categories are first selected by clicking on the "cogwheel symbol". In addition, the query can be customized by selecting:

- Period
- All hazard categories or only Food Fraud
- Chart b percentage or number

Product category for selected hazard category by number:
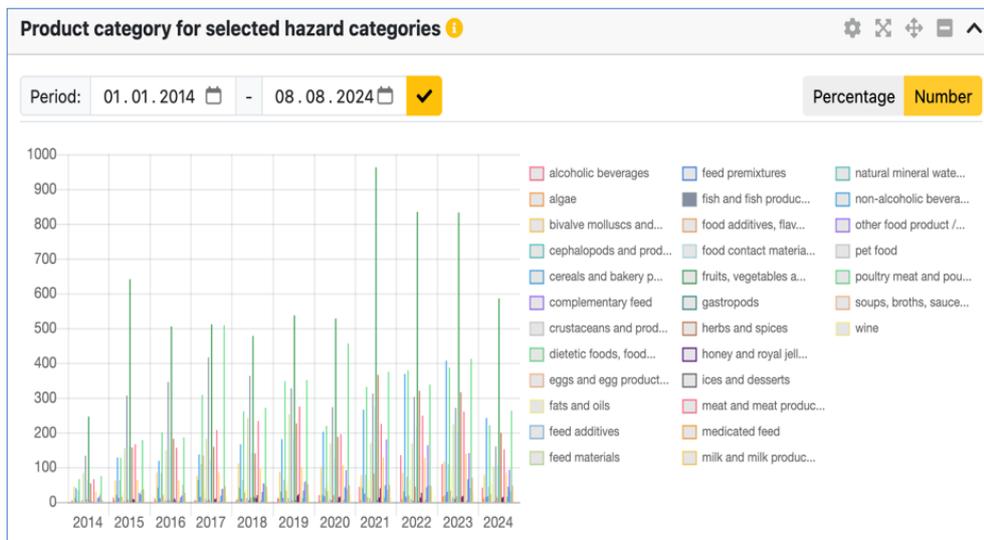
Product category for selected hazard category by percentage:
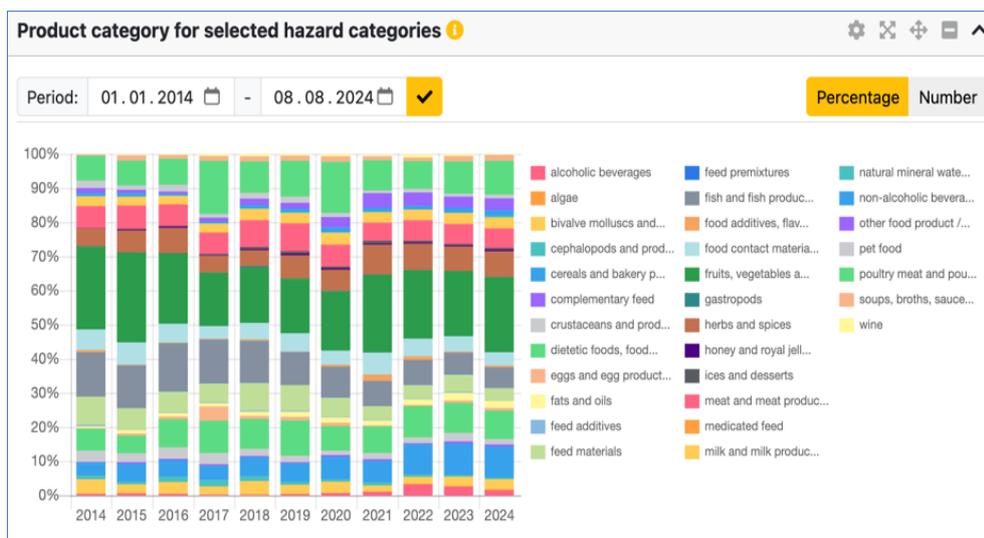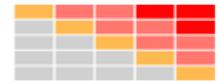
13.7 Trend analysis

After selecting a trend analysis (article, hazard source, country of origin) the window looks as follows (here as example the trend analysis of hazards):
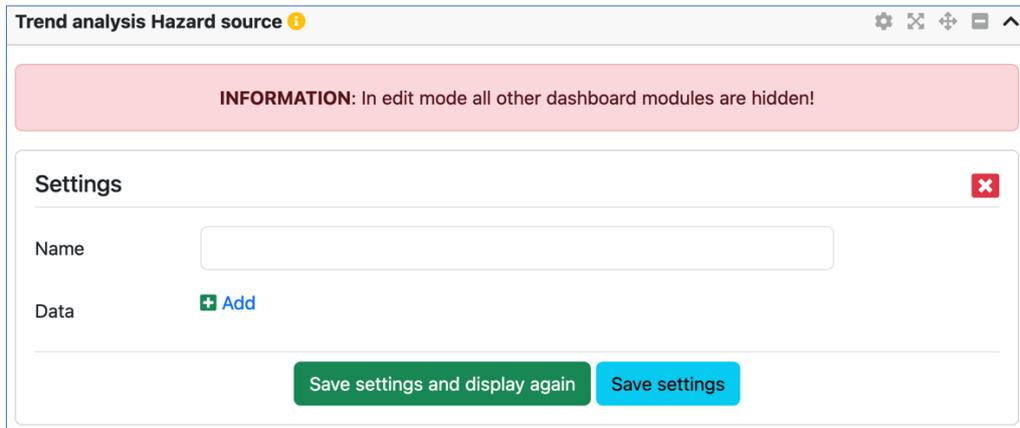

After naming the trend analysis, individual hazards can be added to the trend analysis. It is also possible to enter several hazards as a group. In this case, the evaluation is shown in total for the selected hazards After clicking on "Add", select "Create as group" and enter a name for the new group.

The hazards can be selected in the "Search" field.
Note: It is recommended not to save until all hazards (or articles or countries of origin) have been selected. It is also possible to add hazards to a saved group. To do this, click on the "cogwheel symbol":

The configuration window appears, where the user can select "Edit group":
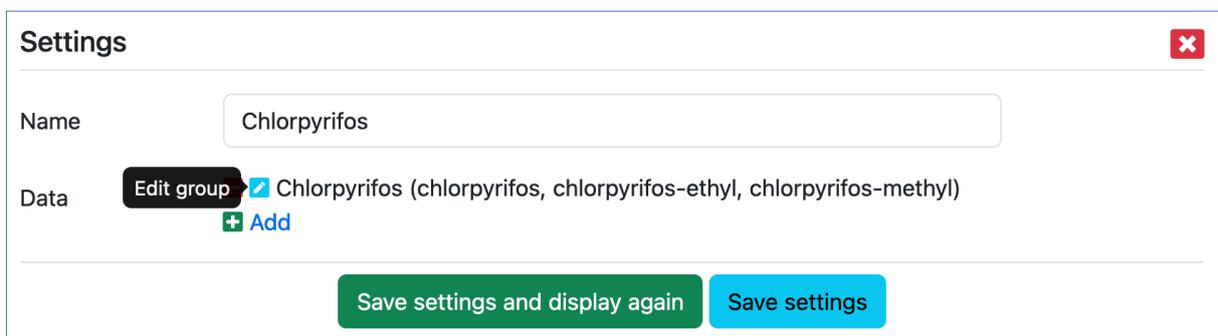
After that, the selection window appears like under " Add" and it is possible to add further selections to the trend analysis. Here the hazards "ethylene oxide and 2-chloroethanol have been grouped:
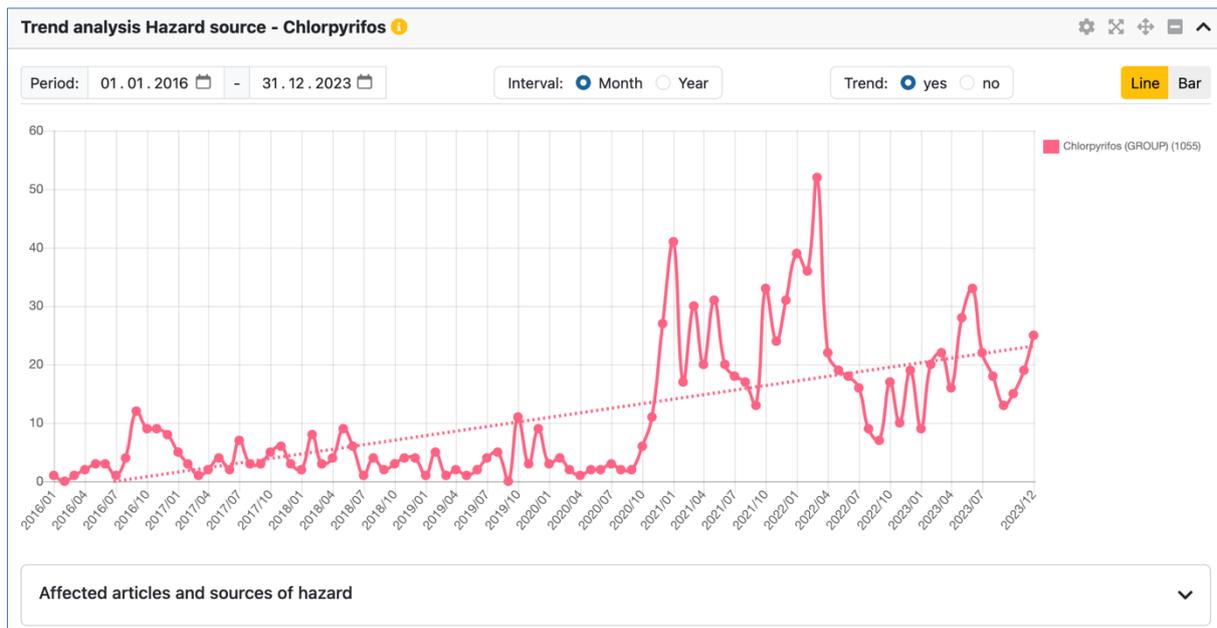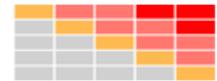
Options are:

1. start time (the end is always the launching date. This makes it very easy to follow the progress of a hazard).
2. interval: month or year
3. line or bar chart, with the option to show a "trend line" (dotted line).

Clicking on the field "affected articles and countries of origin" opens a table showing the affected articles and the corresponding countries of origin (each with the number of notifications).

The trend analyses for articles and countries of origin are generated as described for the trend analysis hazard source.

The trend analyses "Articles" and "Countries of origin" are created as described for the trend analysis "Hazard".

In the trend analysis "Articles", the affected hazards and countries of origin are displayed below the graphic.
In the trend analysis "Countries of origin", the corresponding articles and hazards are displayed.

13.8 (World) map

The world map shows the countries by risk in relation to their Corruption Perception Index (CPI) and Global Competitiveness Index (GCI) (see also the explanations under point 15):
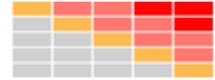
Map ⓘ

View based on Corruption Perceptions Index (CPI) und Global Competitiveness Index (GCI)

Information: The map section is movable with the mouse! Double enlarged!

Legend: ☐ no risks, ▨ acceptable risks, ▨ conditionally acceptable risks, ▨ unacceptable risks, ▨ critical risks ▨ Countries without CPI and or GCI ranking

Display of countries according to risk of food fraud based on CPI and GCI

13.9 Latest notifications

This table shows the last 20 notifications for articles where no notifications have been made before:

The latest notifications (20) ⓘ

peanut butter > acrylamide

peanut butter > acrylamide

peanuts > aflatoxins

various products > illegal import

cheese (mozzarella) > Listeria monocytogenes

peanuts > aflatoxins

banana in syrup > E 210 - benzoic acid

peanuts > aflatoxins

> pyrrolizidine alkaloids

raisins > ochratoxin A

rice > mineral oil aromatic hydrocarbons (MOAH) and mineral oil saturated hydrocarbons (MOSH)

snacks > mineral oil aromatic hydrocarbons (MOAH) and mineral oil saturated hydrocarbons (MOSH)

CBD oil > tetrahydrocannabinol (THC)

dried apricots > undeclared sulphite

mixed salad > Salmonella spp.

organic food supplement > novel food Azadirachta indica

black cumin seed (Nigella sativa) > chlorpyrifos

poultry meat > Salmonella infantis

chickpeas > deltamethrin, piperonylbutoxide

ajvar (red pepper relish) > glass fragments
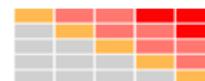
By clicking on the notification, you will receive further information:

Details	
Number	AFF 2024_09.999999999
Type of message	alert
Date of notification	09/10/2024
Report MS	Belarus (BY)
Description	
Product category	nuts and seeds and products thereof
Food	peanut butter
Hazard	acrylamide
Country of Origin	Germany (DE)
Distribution	Germany (DE)
Quantity	-
Test result	
Measures taken	-

14   Countries of origin according to CPI and GCI (Modul „Map)

The module "Map" shows the countries of origin for a selected article. The view can be based on the Corruption Perceptions Index (CPI) and/ or the Global Competitiveness Index (GCI).

Food Fraud Analysis
Map
Profile
Watch list
My Data
Logout

Corruption Perceptions Index (CPI)
The Corruption Perception Index (CPI) is based on surveys and research conducted by more than ten independent institutions. The index ranges from 0 to 100, with 100 indicating the lowest perception of corruption and thus the best possible result (source: Transparency International). The current index includes 180 countries listed according to their CPI.

Global Competitiveness Index (GCI)
The growth competitiveness index is an indicator of the current competitiveness of 140 countries. It is compiled by the World Economic Forum and published as part of the Global Competitiveness Report. The maximum score is 100. The Global Competitiveness Index is calculated from three sub-indices: the basic requirements and needs, the efficiency-enhancing factors and the innovation and sophistication factors. Currently 12 categories are considered: Institutions, infrastructure, information/communication technology, macroeconomic environment, health, education and training, product market efficiency, labour market efficiency, financial systems, market size, business dynamics and innovation capacity. The individual factors are assessed differently. Further information is available at World Economic Forum.

The colours displayed corresponding i.e. to the module HACCP Export. The map can be moved easily with the mouse or enlarged individually or can be reduced in size.
The figure shows an example for the query "pineapple", taking into account the Corruption Perceptions Index (CPI) and Global Competitiveness Index (GCI) data:

Safefood-Online
Identify risks and increase opportunities

Map

Search

pineapple   [find]

Display
- ☑ Corruption Perceptions Index (CPI)
- ☑ Global Competitiveness Index (GCI)

Information: The map section is movable with the mouse! Double enlarged!

Legend: ☐ no risks, ☐ acceptable risks, 🟧 conditionally acceptable risks, 🟥 unacceptable risks, 🟥 critical risks
🟩 Countries without CPI and or GCI ranking

Display of countries according to risk of food fraud based on CPI and GCI

A table showing the notifications with countries of origin, articles and the CPI and GCI of the countries of origin is shown below the map:

Country	Article	CPI	GCI	
Austria	packaging (of pineapple juice)	71	76.60	☐
Belgium	canned pineapple	73	76.40	☐
Benin	pineapple	43	45.80	🟥
Cameroon	pineapple	26	46.00	🟥
China	canned pineapple	42	73.90	🟧
Colombia	pineapple	39	62.70	🟧
Costa Rica	pineapple, organic pineapple	54	62.00	🟧
Czech Republic	candied pineapple	56	70.90	☐
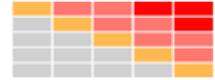
15 Graphical display of notifications

The menu "Evaluation" can be used to display the notifications in different ways:

The output is always in PDF format. The options of the evaluation are available directly after opening the corresponding window.


The notifications can be displayed according to:

- Notification type
- Region
- Product categories
- Hazard categories

The output is given as a pdf-file.

Here an example of the notifications for 2023 by notification type:

Classification of the notifications according type 2023

Legend:
- 1. alerts (1677)
- 2. information (2015)
- 3. border rejections (1530)
- 4. news (0)
- 5. inquire (0)
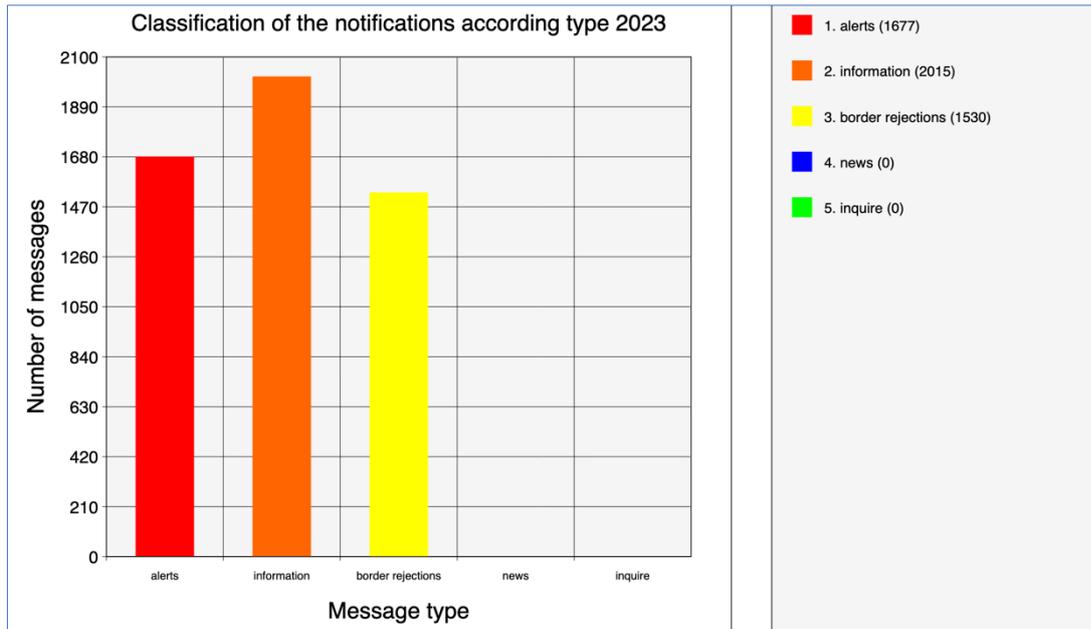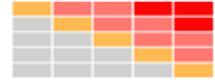
16   Download-Area

Besides the SAFEFOOD-ONLINE manual, other interesting articles and the SAFEFOOD-ONLINE newsletter are available in the download area:
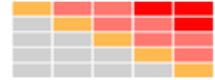
17 Consulting and services

Individual advice to establish or develop further the risk management process or HACCP concept is available on request.

Offered services and consulting:

- Taking over individual queries on the risk management process
- Support to establish individual HACCP plans for existing raw materials and animal feed
- Competent support for inspection planning
- Queries and advice on Food Fraud
- Conducting supplier audits
- Answering questions about product safety
- On-site consultations on the development of a risk management system (according to DIN ISO 31000)
- Integration of the risk management system into the existing management system
- In-house training on risk management

Please address your questions directly to SAFEFOOD-ONLINE (bernhard.mueller@safefood-online).

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