Annex 3 : Technical data sheet of the indicators used for measuring the food safety state

FSI1: Mandatory notification with regard to food safety

Description: The number of notifications received by the FASFC for each year. This indicator does not relate to the notifications concerning animal diseases, plant diseases or harmful organisms, as long as they do not have an impact on food safety.

Results:

Year	Number of notifications	% conformity	Limit
2008	390	Not applicable	Not applicable
2007	357	Not applicable	Not applicable

Calculation of the indicator: Compared to 2007, there was increase of 9,24% in 2008.

Interpretation: On one hand, this indicator shows that the self-checking system of the operators is functioning, and, on the other hand, also shows that other persons who, in the course of their profession, find out that a product is not conform to food safety prescriptions are highly alert. This leads to an improvement of the food safety situation. An increase of the indicator thus also implies that the vigilance with respect to food safety has improved.

Part of the chain to which the indicator applies: Suppliers (non-food, feed), primary production, processing, distribution, import, storage and transport by third parties, commercial services and wage work.

Matrix: Foodstuffs and animal feed

Category: Crisis prevention and crisis management

Justification for the selection of this indicator: Based of incidents that occurred in the past, it appeared that crisis prevention and crisis management are very important for achieving or maintaining a high level of food safety. The obligation to report is a crucial instrument for crisis prevention and crisis management.

Additional information: Each and every operator carrying out activities that fall under the competence of the FASFC is required to inform the FASFC of any suspicion or reason to assume that a product that was imported, produced, grown, processed, manufactured or distributed by him constitutes a potential health hazard for human beings, animals and plants. Each and every laboratory, inspection or certification body, and all staff involved in sanitary surveillance of cattle farms will also need to promptly inform the FAVV in case they have even the slightest suspicion that a product that was put on the market does not meet the food safety prescriptions.

Legal framework:

1. Regulation (EC) No 178/2002 of the European parliament and of the Council of 28 January 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
2. Royal Decree of 14 November 2003 on self-checking, mandatory notification, and traceability in the food chain.
3. Ministerial Decree of 22 January 2004 on the modalities regarding the mandatory notification within the food chain.

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Notes: In 2008, there were 3 notifications that were 'not registered in BOOD'. These notifications have not been included in the indicator.

Explanatory notes to the results: In 2008, there was a strong increase of the number of dioxin related notifications. This rise is almost exclusively due to the dioxin incident in Ireland in December 2008, as a result of which the Belgian operators who had purchased Irish pork meat were forced to inform the FASFC of this incident. Furthermore, there also was a rise in the number of notifications related to unauthorized use of herbicides or other similar products. As for mycotoxins, residuals of herbicides and unauthorized coloring agents, there was however a drop in the number of

notifications.

FSI2: Self-checking systems in the supply sector for primary production

Description: The percentage of performed key activities using a validated self-checking system in the supply sector for primary production, on an annual basis.

Results:

Year	Number of performed key activities	% performed key activities with a validated self-checking system	Limit
2008	1065	53,33%	Not applicable
2007	1065[1]	43,57%	Not applicable

Calculation of the indicator: Compared to 2007 an increase was noted in 2008 of 22,41%.

Interpretation: This indicator serves as a criterion for the percentage of key activities for which a validated 'ACS' ('Auto Control System' or self-checking system) is available. A validated ACS is an ACS that has been declared to be in conformity with the set requirements after investigation by a third party. Independent validation of an ACS enhances its surplus value and makes it more trustworthy with regard to its foundations and functioning. An increase in the number of key activities with a validated ACS will thus indirectly result in a greater confidence level as to the safeguarding of prevention within the food safety process.

Part of the chain to which the indicator applies: Suppliers of primary production: feed.

Matrix: Not applicable

Category: Development of self-checking (self-checking or auto-monitoring)

Justification for the selection of this indicator: Self-checking constitutes an important policy instrument for achieving/maintaining a high level of preventive safeguarding with respect to food safety. During the validation process, the ACS is put to the test in order to see whether or not it is in conformity with the set requirements. The percentage of key activities with a validated ACS serves as an indication as to the presence of a properly functioning ACS.

Additional information: Self-checking stands for the entire set of measures that are taken by the operators in order to ensure that all products falling under their responsibility, and for all production, processing and distribution phases, are capable of:

- meeting the legal requirements regarding food safety;
- meeting the legal requirements regarding product or produce quality, which belongs to the competence of the FASFC;
- meeting the requirements regarding traceability and surveillance of effective compliance of these requirements.

On the basis of a sector guide, companies can have their ACS validated by a certification or inspection body (OCI) that has been recognized as such by the FASFC. In case there is no approved guide available for a certain sector, or if no OCI has been recognized by the FASFC, the operator may resort to the FASFC for conducting the validation.

Legal framework: The validation of the ACS does not represent a legal requirement. The legal framework regarding self-checking and the use of sector guides can be found in the legislation texts as listed below:

1. Regulation (EC) No 178/2002 of the European parliament and of the Council of 28 January 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
2. Regulation (EC) No 852/2004 of the European parliament and of the Council of 29 April 2004 on hygiene of foodstuffs.
3. Royal Decree of 14 November 2003 on self-checking, mandatory notification, and traceability in the food chain.
4. Ministerial decree 24 October 2005 on the alleviation of application modalities for self-

[1] As in 2007 the operator database and the operator activities was to be completed, uncertainty existed about the number of performed key activities in regard to the feed sector in 2007. Consequently the calculation of the indicator in 2007 was based on the number of key activities in 2008.

checking and traceability for particular enterprises in the food sector.

5. Royal decree of 27 April 2007 on the amendment of the Royal decree of 14 November 2003 on self-checking, mandatory notification and traceability within the food chain.

Does the indicator meet the set criteria?:

☑ Measurable (availability of quantitative data)
☑ Independent (no overlap between the respective indicators)
☑ Reliable (bias sensitivity)
☐ Availability of information contained in existing reports or documents
☑ Relevancy with respect to food safety
☑ Crisp and clear interpretation
☑ Durable
☑ Must clearly reflect the chain approach
☑ The body of indicators must be representative of the entire food chain

Notes: Operators may freely decide whether or not to have their self-checking system validated. A key activity for which no validated self-checking system is available, does not mean that the self-checking system is absent or that it does not function properly. However validation by a third party is a surplus and is more credible as it is done independently.

Explanatory notes to the results: /

Key activities: In annex 5 the activities are listed that have been selected as key activity of the 'activity tree' structure.

FSI3: Self-checking systems in the primary production sector

Description: The percentage of performed key activities (cfr annex 5) using a validated self-checking system in the primary production sector, on an annual basis.

Results:

Year	Number of performed key activities	% performed key activities with a validated self-checking system	Limit
2008	92399	11,73%	Not applicable
2007	84303	6,25%	Not applicable

Calculation of the indicator: Compared to 2007, there was increase of 87,78% in 2008.

Interpretation: This indicator serves as a criterion for the percentage of key activities for which a validated 'ACS' ('Auto Control System' or self-checking system) is available. A validated ACS is an ACS that has been declared to be in conformity with the set requirements after investigation by a third party. Independent validation of an ACS enhances its surplus value and makes it more trustworthy with regard to its foundations and functioning. An increase in the number of key activities with a validated ACS will thus indirectly result in a greater confidence level as to the safeguarding of prevention within the food safety process.

Part of the chain to which the indicator applies: Primary production.

Matrix: Not applicable

Category: Development of self-control

Justification for the selection of this indicator: Self-checking is a crucial policy instrument for achieving/maintaining of a high level of preventive guaranteeing of food safety. During validation of an ACS it is verified if the system is conform with the set conditions. The percentage of key activities with a validated ACS is an indication for the presence of a good functioning ACS.

Additional information: Self-checking stands for the entire set of measures that are taken by the operators in order to ensure that all products falling under their responsibility, and for all production, processing and distribution phases, are capable of:

- meeting the legal requirements regarding food safety;
- meeting the legal requirements regarding product or produce quality, which belongs to the competence of the FASFC;
- meeting the requirements regarding traceability and surveillance of effective compliance of these requirements.

On the basis of a sector guide, companies can have their ACS validated by a certification or inspection body (OCI) that has been recognized as such by the FASFC. In case there is no approved guide available for a certain sector, or if no OCI has been recognized by the FASFC, the operator may resort to the FASFC for conducting the validation.

Legal framework: The validation of the ACS does not represent a legal requirement. The legal framework regarding self-checking and the use of sector guides can be found in the legislation texts as listed below:

1. Regulation (EC) No 178/2002 of the European parliament and of the Council of 28 January 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
2. Regulation (EC) No 852/2004 of the European parliament and of the Council of 29 April 2004 on hygiene of foodstuffs.
3. Royal Decree of 14 November 2003 on self-checking, mandatory notification, and traceability in the food chain.
4. Ministerial decree 24 October 2005 on the alleviation of application modalities for self-checking and traceability for particular enterprises in the food sector.
5. Royal decree of 27 April 2007 on the amendment of the Royal decree of 14 November 2003 on self-checking, mandatory notification and traceability within the food chain.

Does the indicator meet the set criteria?:

☑ Measurable (availability of quantitative data)
☑ Independent (no overlap between the respective indicators)
☑ Reliable (bias sensitivity)

☐ Availability of information contained in existing reports or documents

☑ Relevancy with respect to food safety ☑ Crisp and clear interpretation ☑ Durable ☑ Must clearly reflect the chain approach ☑ The body of indicators must be representative of the entire food chain
Notes: Operators may freely decide whether or not to have their self-checking system validated. A key activity for which no validated self-checking system is available, does not mean that the self-checking system is absent or that it does not function properly. However validation by a third party is a surplus and is more credible as it is done independently.
Explanatory notes to the results: /
Key activities: In annex 5 the activities are listed that have been selected as key activity of the 'activity tree' structure. In the activity tree 23% of the activities in the primary production sector were selected as key activity. This signifies that approximately 70 % of the performed activities in the primary production sector were selected as key activities.

FSI4: Self-checking systems in the transformation sector

Description: The percentage of performed key activities (cfr annex 5) using a validated self-checking system in the transformation sector, on an annual basis.

Results:

Year	Number of performed key activities	% performed key activities with a validated self-checking system	Limit
2008	17888	1,76%	Not applicable
2007	16754	0,61%	Not applicable

Calculation of the indicator: Compared to 2007, there was increase of 185,53% in 2008. Because in 2007 the percentage of performed key activities with a validated self-checking system was lower then 1% and as a consequence a minor impact has on food safety, this indicator is neutralized in the barometer.

Interpretation: This indicator serves as a criterion for the percentage of key activities for which a validated 'ACS' ('Auto Control System' or self-checking system) is available. A validated ACS is an ACS that has been declared to be in conformity with the set requirements after investigation by a third party. Independent validation of an ACS enhances its surplus value and makes it more trustworthy with regard to its foundations and functioning. An increase in the number of key activities with a validated ACS will thus indirectly result in a greater confidence level as to the safeguarding of prevention within the food safety process.

Part of the chain to which the indicator applies: Transformation, import and transport by third parties

Matrix: Not applicable

Category: Development of self-checking

Justification for the selection of this indicator: Self-checking is a crucial policy instrument for achieving/maintaining of a high level of preventive guaranteeing of food safety. During validation of an ACS it is verified if the system is conform with the set conditions. The percentage of key activities with a validated ACS is an indication for the presence of a good functioning ACS.

Additional information: Self-checking stands for the entire set of measures that are taken by the operators in order to ensure that all products falling under their responsibility, and for all production, processing and distribution phases, are capable of:

- meeting the legal requirements regarding food safety;
- meeting the legal requirements regarding product or produce quality, which belongs to the competence of the FASFC;
- meeting the requirements regarding traceability and surveillance of effective compliance of these requirements.

On the basis of a sector guide, companies can have their ACS validated by a certification or inspection body (OCI) that has been recognized as such by the FASFC. In case there is no approved guide available for a certain sector, or if no OCI has been recognized by the FASFC, the operator may resort to the FASFC for conducting the validation.

Legal framework:

The validation of the ACS does not represent a legal requirement. The legal framework regarding self-checking and the use of sector guides can be found in the legislation texts as listed below:

1. Regulation (EC) No 178/2002 of the European parliament and of the Council of 28 January 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
2. Regulation (EC) No 852/2004 of the European parliament and of the Council of 29 April 2004 on hygiene of foodstuffs.
3. Royal Decree of 14 November 2003 on self-checking, mandatory notification, and traceability in the food chain.
4. Ministerial decree 24 October 2005 on the alleviation of application modalities for self-checking and traceability for particular enterprises in the food sector.
5. Royal decree of 27 April 2007 on the amendment of the Royal decree of 14 November 2003 on self-checking, mandatory notification and traceability within the food chain.

Does the indicator meet the set criteria?:

☑ Measurable (availability of quantitative data)

☑ Independent (no overlap between the respective indicators)
☑ Reliable (bias sensitivity)
☐ Availability of information contained in existing reports or documents
☑ Relevancy with respect to food safety
☑ Crisp and clear interpretation
☑ Durable
☑ Must clearly reflect the chain approach
☑ The body of indicators must be representative of the entire food chain

Notes: Operators may freely decide whether or not to have their self-checking system validated. A key activity for which no validated self-checking system is available, does not mean that the self-checking system is absent or that it does not function properly. However validation by a third party is a surplus and is more credible as it is done independently.

Explanatory notes to the results: /

Key activities: In annex 5 the activities are listed that have been selected as key activity of the 'activity tree' structure. In the activity tree 52% of the activities in the transformation sector were selected as key activity. This signifies that approximately 85 % of the performed activities in the transformation sector were selected as key activities.

FSI5: Self-checking systems in the community kitchen sector

Description: The percentage of performed key activities (cfr annex 5) using a validated self-checking system in the community kitchen sector, on an annual basis.

Results:

Year	Number of performed key activities	% performed key activities with a validated self-checking system	Limit
2008	21653	0,11%	Not applicable
2007	20972	0,01%	Not applicable

Calculation of the indicator: Compared to 2007, there was increase of 643,17% in 2008. Because in 2007 and 2008 the percentage of performed key activities with a validated self-checking system was lower then 1% and as a consequence a minor impact has on food safety, this indicator is neutralized in the barometer.

Interpretation: This indicator serves as a criterion for the percentage of key activities for which a validated 'ACS' ('Auto Control System' or self-checking system) is available. A validated ACS is an ACS that has been declared to be in conformity with the set requirements after investigation by a third party. Independent validation of an ACS enhances its surplus value and makes it more trustworthy with regard to its foundations and functioning. An increase in the number of key activities with a validated ACS will thus indirectly result in a greater confidence level as to the safeguarding of prevention within the food safety process.

Part of the chain to which the indicator applies: Distribution: community kitchens

Matrix: Not applicable

Category: development of self-checking

Justification for the selection of this indicator: Self-checking is a crucial policy instrument for achieving/maintaining of a high level of preventive guaranteeing of food safety. During validation of an ACS it is verified if the system is conform with the set conditions. The percentage of key activities with a validated ACS is an indication for the presence of a good functioning ACS. In community kitchens a good functioning ACS is essential, because ready-to-eat foodstuffs are delivered directly to great consumer groups.

Additional information: Self-checking stands for the entire set of measures that are taken by the operators in order to ensure that all products falling under their responsibility, and for all production, processing and distribution phases, are capable of:

- meeting the legal requirements regarding food safety;
- meeting the legal requirements regarding product or produce quality, which belongs to the competence of the FASFC;
- meeting the requirements regarding traceability and surveillance of effective compliance of these requirements.

On the basis of a sector guide, companies can have their ACS validated by a certification or inspection body (OCI) that has been recognized as such by the FASFC. In case there is no approved guide available for a certain sector, or if no OCI has been recognized by the FASFC, the operator may resort to the FASFC for conducting the validation.

Legal framework:

The validation of the ACS does not represent a legal requirement. The legal framework regarding self-checking and the use of sector guides can be found in the legislation texts as listed below:

1. Regulation (EC) No 178/2002 of the European parliament and of the Council of 28 January 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
2. Regulation (EC) No 852/2004 of the European parliament and of the Council of 29 April 2004 on hygiene of foodstuffs.
3. Royal Decree of 14 November 2003 on self-checking, mandatory notification, and traceability in the food chain.
4. Ministerial decree 24 October 2005 on the alleviation of application modalities for self-checking and traceability for particular enterprises in the food sector.
5. Royal decree of 27 April 2007 on the amendment of the Royal decree of 14 November 2003 on self-checking, mandatory notification and traceability within the food chain.

Does the indicator meet the set criteria?:

☑ Measurable (availability of quantitative data)
☑ Independent (no overlap between the respective indicators)
☑ Reliable (bias sensitivity)

☐ Availability of information contained in existing reports or documents
☑ Relevancy with respect to food safety
☑ Crisp and clear interpretation
☑ Durable
☑ Must clearly reflect the chain approach
☑ The body of indicators must be representative of the entire food chain

Notes: Operators may freely decide whether or not to have their self-checking system validated. A key activity for which no validated self-checking system is available, does not mean that the self-checking system is absent or that it does not function properly. However validation by a third party is a surplus and is more credible as it is done independently.

Explanatory notes to the results: /

Key activities: In annex 5 the activities are listed that have been selected as key activity of the 'activity tree' structure. In the activity tree 100% of the activities in the community kitchen sector were selected as key activity. This signifies that 100% of the performed activities in the community kitchen sector were selected as key activities.

FSI6: Monitoring of self-checking throughout the food chain

Description: The percentage of inspections with regard to self-checking that turned out to be 'OK' or 'OK, subject to remarks'. These inspections are done in primary vegetable production intended for human consumption, as well as in slaughterhouses, processing, dairy farms, egg packaging plants, hotels & restaurants, community kitchens and wholesale and retail. This indicator does not include the phytosanitary inspections, because they are irrelevant to food safety.

Results:

Year	Number of inspections on self-checking	% of 'OK' or 'OK, subject to remarks'	Limit
2008	7068	62,16%	Not applicable
2007	5693	73,10%	Not applicable

Calculation of the indicator: Compared to 2007, there was a decrease of 14,97% in 2008.

Interpretation: This indicator indicates if operators have a good functioning self-checking system. An increase of this indicator is accompanied by an amelioration of food safety.

Part of the chain to which the indicator applies: Primary production, transformation and distribution.

Matrix: Not applicable

Category: Development of self-checking/control

Justification for the selection of this indicator: Self-checking is a crucial policy instrument for achieving/maintaining of a high level of preventive guaranteeing of food safety. During validation of an ACS it is verified if the system is conform with the set conditions. The percentage of key activities with a validated ACS is an indication for the presence of a good functioning ACS.

Additional information: Self-checking stands for the entire set of measures that are taken by the operators in order to ensure that all products falling under their responsibility, and for all production, processing and distribution phases, are capable of:

- meeting the legal requirements regarding food safety;
- meeting the legal requirements regarding product or produce quality, which belongs to the competence of the FASFC;
- meeting the requirements regarding traceability and surveillance of effective compliance of these requirements.

Legal framework:

1. Regulation (EC) No 178/2002 of the European parliament and of the Council of 28 January 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
2. Regulation (EC) No 852/2004 of the European parliament and of the Council of 29 April 2004 on hygiene of foodstuffs.
3. Royal Decree of 14 November 2003 on self-checking, mandatory notification, and traceability in the food chain.
4. Ministerial decree 24 October 2005 on the alleviation of application modalities for self-checking and traceability for particular enterprises in the food sector.
5. Royal decree of 27 April 2007 on the amendment of the Royal decree of 14 November 2003 on self-checking, mandatory notification and traceability within the food chain.

Does the indicator meet the set criteria?:

☑ Measurable (availability of quantitative data)
☑ Independent (no overlap between the respective indicators)
☑ Reliable (bias sensitivity)
☑ Availability of information contained in existing reports or documents
☑ Relevancy with respect to food safety
☑ Crisp and clear interpretation
☑ Durable
☑ Must clearly reflect the chain approach
☑ The body of indicators must be representative of the entire food chain

Notes: Inspections with regard to self-checking have been conducted in the animal feed sector as well, however these inspections were done in combination with inspections regarding infrastructure, installations and hygiene. These inspections were not taken into account for this indicator.
The result of an inspection is determined on basis of a checklist, by which a fixed appraisal, under the

form of a points score, will made for each item to be controlled, and in function of its relative importance. As for the results of any inspection, there are 3 possibilities: either favorable, favorable with remarks or unfavorable. The latter will result in further measures to be taken or in the drawing up of an official report.
Explanatory notes to the results: It is difficult to compare the results of 2008 with those of 2007, as the FASFC has been implementing a new evaluation system since September 2007. This system is based on the use of a checklist, by which a fixed appraisal is made, under the form of a points score, for each item to be controlled, and in function of its relative importance. Although this new evaluation method is more stringent and account for at least part of the differences, clearly there remains some room for improvement. Part of the explanation may also lie in the fact that inspections have been focusing on establishments where non-conformities had been found before (systematic re-inspection). For 2008 as well as for 2007, the percentage of favorable (incl. 'favorable with remarks') inspections showed the lowest results for the hotel & restaurant sector and the commercial kitchen sector (2007: 55,8% favorable and favorable with remarks; 2008: 35,5% favorable and favorable with remarks). Both sectors concerned and the authorities have been making considerable efforts into the sensitization, information and guidance of distribution companies.

FSI7: Inspections of infrastructure, installations and hygiene in the sectors of distribution, hotels & restaurants and community kitchens

Description: The percentage of inspections with regard to infrastructure, installations, and hygiene in the hotel & restaurant sector, in community kitchens and in wholesale and retail businesses that turned out to be 'OK' or 'OK, subject to remarks'.

Results:

Year	Number of inspections concerning infrastructure, installations and hygiene	% 'OK' and 'OK, subject to remarks'	Limit
2008	12492	56,01%	Not applicable
2007	14910	77,77%	Not applicable

Calculation of the indicator: Compared to 2007, there was a decrease of 27,98% in 2008.

Interpretation: This indicator indicates if operators from horeca, community kitchens, milk kitchens, wholesale and retail businesses meet the legal requirements with regard to infrastructure, installations and hygiene. An increase of this indicator indicates an amelioration of food safety.

Part of the chain to which the indicator applies: Distribution in particular: horeca, community kitchens, milk kitchens, wholesale and retail businesses.

Matrix: Not applicable

Category: Control

Justification for the selection of this indicator: Good hygiene, appropriate infrastructure and installation are basic conditions to obtain safe food. In horeca, community kitchens, milk kitchens, wholesale and retail businesses, where meals are served directly to the consumer or were foodstuffs are sold directly or indirectly to the consumer, hygiene, infrastructure and installation are of crucial importance in striving for a high level of food safety.

Additional information: Food hygiene, or in short: 'hygiene', stands for all measures and prescriptions that are necessary for countering any dangers linked to specific foodstuffs and to guarantee their suitability for human consumption, thereby taking their intended use into account.

Legal framework:

1. Regulation (EC) No 852/2004 of the European parliament and of the Council of 29 April 2004 on hygiene of foodstuffs.
2. Royal Decree of 22 December 2005 on food stuff hygiene.
3. Regulation (EC) No 853/2004 of the European parliament and of the Council of 29 April 2004 laying down specific hygiene rules for food of animal origin
4. Royal Decree of 22 December 2005 on hygiene of food stuffs of animal origin modified by Royal Decree of 24 May 2006.
5. Royal Decree of 10 November 2005 on retail businesses in certain food stuffs of animal origin.

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Notes: The result of an inspection is determined on basis of a checklist, whereby a fixed appraisal is given, under the form of a points score, for each item to be controlled, and in function of the relative importance thereof. As for the results of an inspection, there are 3 possibilities: either favorable, favorable with remarks, or unfavorable. The latter will result in taking further measures or in the drawing up of an official report.

Explanatory notes to the results: It is difficult to compare the results of 2008 with those of 2007, as the FASFC has been implementing a new evaluation system since September 2007. This system is based on the use of a checklist, by which a fixed appraisal is made, under the form of a points score, for each item to be controlled, and in function of its relative importance. This new evaluation method

is more stringent and explains at least part of the differences between 2008 and 2007. Furthermore, these controls are focused on establishments for which non-conformities had already been reported (systematic re-inspection) which also is a part of the explanation. Considerable efforts are made by the sector as well as by the authorities to sensitize, inform and guide distribution companies.

FSI8: Inspections regarding the traceability within the food chain

Description: The percentage of inspections regarding traceability that turned out to be 'OK' or 'OK, subject to remarks'. These inspections are conducted at the level of the suppliers to primary production (fertilizers, soil conditioners, growing substrates, purification sludge and animal fodders), as well as at the level of primary vegetable production intended for human consumption and animal primary production (cattle farms, pig farms, farms having sheep, goat and deer-like animals, layer hen farms, poultry farms, hatcheries), slaughterhouses, traders and collecting centers (for the identification and registration of animals), transport (identification and registration of animals), processing, and, finally, wholesale and retail.

Results:

Year	Number of inspections in traceability	% of 'OK' or 'OK, subject to remarks'	Limit
2008	13713	94,70%	Not applicable
2007	11856	93,87%	Not applicable

Calculation of the indicator: Compared to 2007, there was increase of 0,88% in 2008.

Interpretation: This indicator indicates if operators meet the legal requirements with regard to traceability. An increase of this indicator indicates a better control of food safety.

Part of the chain to which the indicator applies: Suppliers of primary production (fertilizers, soil amendments, growth substrates, sludge and feed), primary vegetal production intended for human consumption, primary animal production (cattle, swine, sheep, goat and cervid farms, poultry, hatcheries), slaughterhouses, traders and assembly centers (identification and registration of animals), transport (identification and registration of animals), transformation, wholesale and retail businesses.

Matrix: Not applicable

Category: Control

Justification for the selection of this indicator: Traceability is an important aspect of safeguarding food safety and is crucial for an efficient crisis management. Inspections with regard to traceability are an important to evaluate if operators have an efficient traceability system in place.

Additional information:
Traceability means the possibility to trace and follow any product throughout all phases of the production, processing and distribution processes.

Legal framework:

1. Regulation (EC) No 178/2002 of the European parliament and of the Council of 28 January 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
2. Regulation (EC) No 852/2004 of the European parliament and of the Council of 29 April 2004 on hygiene of foodstuffs.
3. Royal Decree of 14 November 2003 on self-checking, mandatory notification, and traceability in the food chain.
4. Ministerial decree 24 October 2005 on the alleviation of application modalities for self-checking and traceability for particular enterprises in the food sector.
5. Royal decree of 27 April 2007 on the amendment of the Royal decree of 14 November 2003 on self-checking, mandatory notification and traceability within the food chain.

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Notes: The result of an inspection is determined on basis of a checklist, whereby a fixed appraisal is given, under the form of a points score, for each item to be controlled, and in function of the relative importance thereof. As for the results of an inspection, there are 3 possibilities: either favorable, favorable with remarks, or unfavorable. The latter will result in taking further measures or in the drawing up of an official report.

Explanatory notes to the results: It is difficult to compare the results of 2008 with those of 2007, as the FASFC has been implementing a new evaluation system since September 2007. This system is based on the use of a checklist, by which a fixed appraisal is made, under the form of a points score, for each item to be controlled, and in function of its relative importance. This new evaluation method is more stringent. Moreover control are aimed at establishments where non-conformities had already been reported (systematic re-inspection).

FSI9: Residues from pesticides/herbicides in vegetables and fruit of Belgian origin

Description: The percentage of samples of vegetables and fruit of Belgian origin that is tested for residues from pestidices/herbicides and that were conform.

Results:

Year	Number of samples	% conformity	Limit
2008	538	96,3%	MRL (Maximum Residue Level)[2]
2007	889	94,2%	MRL (Maximum Residue Level)

Calculation of the indicator: Compared to 2007, there was increase of 2,23% in 2008.

Interpretation: This indicator serves as a criterion for the presence of residuals from pesticides or herbicides in vegetables or fruit under the MRL. In case residuals of pesticides or herbicides are found in concentrations that exceed the MRL, this may lead to an enhanced exposure, which in turn constitutes a food safety risk. However, this depends on how the foodstuffs are prepared, as activities such as rinsing, skinning and cooking can help to achieve a considerable reduction of the degree of exposure. The presence of non-conform samples however indicates that good agricultural practices ('GLP/GAP') were not always applied. An increase of the indicator, namely an increase of the percentage of 'conform' samples, means an improved implementation of the GLP/GAP, and thus indirectly reflects an improvement of the overall food safety.

Part of the food chain to which this indicator applies: Primary products: plant production and wage work

Matrix: Vegetables and fruit

Category: control

Justification for the selection of this indicator: Pesticides are a potential risk to public health, because incorrect use may lead to an exposure exceeding the ADI (acceptable daily intake). Exceeding the MRL signifies that GLP/GAP is not sufficiently respected.
This Food Safety Indicator is an indicator of the chemical hazard: residues of pesticides.

Additional information: In vegetable and fruit cultivation, phytopharmaceutical products are used to control all kind of plagues or pests (such as: insects, moulds or fungi, phytopathogens and weeds). Very often, residues of these substances are still present in the crops. As set forth in the relevant regulations, limitations have been set for the maximum content of residue substances for all authorized pesticides and herbicides (MRLs). This allows monitoring of the proper use of these pesticides and herbicides (use of authorized products, using the right dosage and respecting the proper waiting times before harvesting), and thus contributes to the protection of consumers' health.

Legal framework:

1. Regulation (EC) No 396/2005 of the European parliament and of the Council of 23 February 2005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin and amending Council Directive 91/414/EEC

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Notes: Foodstuffs that possibly are in excess of the MRL limits and that are frequently consumed, will be put under close supervision.

Explanatory notes to the results: As from September 1st, 2008, the MRLs are harmonized throughout the entire European Union (Regulation (EC) No 396/2005), for the purpose of protecting the European consumers and to allow free traffic of foodstuffs. However, the FASFC has been

[2] An overview of the applicable MRL's can be found at http://ec.europa.eu/sanco_pesticides/public/index.cfm

implementing this legislation as early as July 2007. Before July 2007, only national MRLs were being implemented. This change with regard to the MRLs makes it difficult to make a proper comparison between the years 2007 and 2008.

FSI10: Acrylamide

Description: The percentage of samples that is tested for acrylamide and that were conform.

Results:

Year	Number of samples	% conformity	Limit
2008	182	89,01%	1000 µg/kg (action limit)
2007	178	91,57%	1000 µg/kg (action limit)

Calculation of the indicator: Compared to 2007, there was decrease of 2,80% in 2008.

Interpretation: This indicator serves as a criterion for the absence of acrylamide (AA) in several foodstuffs. High concentrations of AA may lead to an enhanced exposure, which may in turn affect the overall food safety. An increase of this indicator, which reflects an increase of the percentage of conform samples, thus also indicates that the overall food safety has improved.

Part of the chain to which the indicator applies: Transformation

Matrix: Carbohydrate rich, vegetable foodstuffs which are heated at high temperatures (>120°C) such as during baking, roasting and frying.

Category: control

Justification of the selection of this indicator: Acrylamide is a toxic compound that is formed during the preparation of foodstuffs. Because of the presumed genotoxic nature of this compound, exposure must be minimized by taking measures that prevent the forming of this compound. This food safety indicator serves as an indicator for the chemical hazard: process contaminant.

Additional information: Acrylamide is a process contaminant that is formed during heating of mainly vegetable foodstuffs that are rich in carbohydrates, at high temperatures (>120°C), for example during baking, roasting or frying. The substance is also used in a large number of industrial applications, among which the production of polyacrylamide stands out most. Acrylamide is neurotoxic and is presumably also carcinogenic for humans.

Legal framework:
Up till now no legal guidelines exist on acrylamide in foodstuff. In Belgium the FASFC uses the 1000 µg/kg action limit and Belgian operators are warned when this action limit is exceeded.

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Notes: /

Explanatory notes to the results: In 2007, 39 samples were taken during transformation (97,44% conform) and 139 during distribution (89,93% conform). The non-conform samples included chicory (10), spice cake (2), chips (1), paprika powder (1), and baby food (1). In 2008, 43 samples were taken during transformation (100% conform) and 139 during distribution (85,61% conform). The non-conform samples included chicory (10), coffee (7), paprika powder (2), and baby food (1).

FSI11: Lead and cadmium in vegetables and fruit

Description: The percentage of samples of vegetables and fruit that is tested for the presence of lead and cadmium and that were conform.

Results:

Year	Number of samples	% conformity	Limit
2008	397	100%	Different max. levels in Regul (EC) No 1881/2006
2007	374	100%	Different max. levels in Regul (EC) No 1881/2006

Calculation of the indicator: Compared to 2007, there was increase of 0% in 2008.

Interpretation: This indicator serves as a criterion for the presence of lead and cadmium in vegetables and fruit below the maximum allowed limit as defined by law. The presence of lead and cadmium beyond the maximum allowed limit may lead to an enhanced exposure, which in turn affects overall food safety. In increase of this indicator, namely an increase of the percentage of conform samples, thus also means that the food safety situation as improved.

Part of the chain to which the indicator applies: Primary production (vegetables and fruit)

Matrix: Vegetables and fruit

Category: control

Justification for the selection of this indicator: Lead and cadmium are toxic compounds that constitute a hazard for public health. Vegetables and fruit are an important source of intake of lead and cadmium through food.
This Food Safety Indicator is an indicator for the chemical hazard: environmental contaminant

Additional information: Cadmium (Cd) is an environmental contaminant that naturally occurs in the environment, but its presence may also be caused by industrial and agricultural activities. Food is the most important source of exposure for the non-smoking and not professionally exposed part of the population. Cadmium is mainly toxic to the kidneys. In vegetables, cadmium can be found especially in spinach, celery and black salsify, and to a lesser degree also in potatoes, leek, parsley and carrots.

Lead (Pb) is an environmental contaminant whose presence is mainly caused by anthropogenous emissions. Foodstuffs are the main source of exposure to Pb. The largest portion of lead occurring in vegetables and fruit comes from the air. Specific risk crops with regard to atmospheric deposition of spore elements (Pb and others) are leafy vegetables, such as spinach, salad, endives and celery.

Legal framework:

1. Commission Regulation (EC) No 1881/2006 of 19 December 2006 setting maximum levels for certain contaminants in foodstuffs

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Remarks: /

Explanatory notes: /

FSI12: Aflatoxin en deoxynivalenol

Description: The percentage of samples of foodstuffs in distribution that is tested for aflatoxin B_1, B_2, G_1 and G_2 and deoxynivalenol (DON) and that were conform.

Results:

Year	Number of samples	% conformity	Limit
2008	406	99,72%	Different maximum levels in Regulation (EC) No 1881/2006
2007	297	99,33%	Different maximum levels in Regulation (EC) No 1881/2006

Calculation of the indicator: Compared to 2007, there was increase of 0,39% in 2008.

Interpretation: This indicator shows to which extent mycotoxines are present in foodstuffs. When mycotoxine concentrations exceed the maximum allowed limit, this may lead to an enhanced exposure, which in turn affects the overall food safety. In increase of this indicator, namely an increase of the percentage of conform samples, thus also indicates that the food safety situation has improved.

Part of the chain to which the indicator applies: Primary production (arable farming), storage (in transformation, wholesale and by third parties) and import

Matrix: Multiple vegetable foodstuffs

Category: control

Justification for the selection of this indicator: Among the natural contaminants, mycotoxines form an important group, due to their toxicity and also because they occur in a wide range of vegetable products (and to a lesser degree also in animal products), whereby high concentrations are found sporadically. Aflatoxins are carcinogenic compounds that enter the Belgian market through the importation of foodstuffs. DON is a toxic compound that can be formed in the West European climate and, as a consequence, may possibly occur in Belgian crops, more in particular in cereals. This food safety indicator is an indicator for the chemical hazard: natural contaminants

Additional information: Mycotoxins are toxic, secondary metabolites of fungi. They are formed in crops, both on the farmlands as during storage following harvesting. One of the most important groups of mycotoxins is formed by the aflatoxins. Aflatoxins constitute a group of about 20 compounds, of which Aflatoxins B_1, B_2, G_1, G_2, M_1 and M_2 are most prevalent. Aflatoxins M_1 and M_2 are metabolites of the aflatoxins B_1 and B_2 that are found in milk. Aflatoxins are formed by 4 *Aspergillus* species: *A. flavus, A. parasiticus, A. nomius* and *A. pseudotamarii*. These toxic compounds can be found in nuts, cereals, dried fruit and dairy products. Besides their carcinogenic effect, aflatoxines are also mutagenic, teratogenic and hepatotoxic. The aforementioned fungi are not capable of developing in the West European climate. Consequently, exposure to aflatoxins B_1, B_2, G_1 and G_2 must be caused by imported products.
Deoxynivalenol (DON) belongs to the trichothecenes, a family of 150 structurally related components. DON is formed by *Fusarium* species (*Fusarium graminearum* (*Gibberella zeae*) and *F. culmorum),* mainly in cereals. In the West European climate, these fungi can develop and eventually produce DON. However, the contamination of cereals with DON depends strongly upon the climatologic circumstances (precipitation) at the time of flowering and harvesting, and may therefore vary strongly between years. DON is toxic on the cellular level due to the inhibition of DNA, RNA and protein synthesis. Besides digestion problems and a resulting loss of weight, DON also affects the immune system and the proper functioning of the intestinal barrier.

Legal framework:

1. Commission Regulation (EC) No 1881/2006 of 19 December 2006 setting maximum levels for certain contaminants in foodstuffs

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach

☑ The body of indicators must be representative of the entire food chain
Notes: The analyses for aflatoxins and for DON are considered as mutually independent. In other words, the number of samples analysed for aflatoxins B_1, B_2, G_1 and G_2 will be added to the number of samples analysed for DON.
Explanatory notes to the results: In 2008, one spices sample turned out to be non-conform with regard to aflatoxins. In 2007, two samples of dried fruit and nuts were not conform with regard to aflatoxins.

FSI13: Substances with an anabolic action, unauthorized substances and veterinary drugs for cattle and pigs

Description: The percentage of samples/animals that is tested for substances with an anabolic action and for the presence of unauthorized substances (Group A: stilbene, and its derivates, salts and esters; antithyreogenic substances; steroids; resorcylic adic lactones (including zeranol); β-agonists; substances that listed in Annex IV of the Regulation (EEC) n° 2377/90) and veterinary drugs (group B1 (antibacterial substances, including sulfonamides and quinolones) and group B2 (anthelminthica; coccidiostatica, including nitro-imidazoles; carbamates and pyrethroids; tranquillizers; non-steroidal anti-inflammatory pharmaceuticals; other substances with a pharmacological action) that are taken in cattle and pigs, within the scope of the control program and that were conform.

Results:

Year	Number of samples/animals	% conformity	Limit
2008	11624	99,86%	Absent or MRL
2007	10945	99,81%	Absent or MRL

Calculation of the indicator: Compared to 2007, there was increase of 0,05% in 2008.

Interpretation: This indicator serves as a criterion for the use of anabolic substances and unauthorized substances on the one hand, and as a criterion for the presence of veterinary drug residues above the MRL (Maximum Residue Level) on the other hand. When anabolic substances and unauthorized substances are used, or when veterinary drug residue concentrations are in excess of the MRL level, this may lead to an enhanced exposure, which in turn may cause problems with regard to food safety. The presence of anabolic substances and unauthorized substances is also an indication that good agricultural practices (GLP/GAP) were not always applied (e.g. waiting times were not respected). An increase of this indicator, namely an increase of the percentage of conform samples, thus also implies a better implementation of the GAP, which will indirectly contribute to an improvement of the overall food safety situation.

Part of the chain to which this indicator applies: Primary production (animal production of cattle and swine)

Matrix: Not applicable

Category: control

Justification for the selection of this indicator: Veterinary drugs are a potential hazard to public health, because inappropriate use of these drugs may lead to an exposure that exceeds the ADI (Acceptable Daily Intake) limit. Anabolic substances and unauthorized substances are also a potential hazard to public health. This indicator only applies to the activities of the FASFC within the framework of the monitoring program.
This food safety indicator is an indicator of the chemical hazard: anabolic substances, unauthorized substances and veterinary drug residues.

Additional information: Anabolic substances, unauthorized substances and veterinary drugs are used in animal production.
The regulation sets specific maximum residue limits (MRLs) for authorized veterinary drugs. These MRLs enable the monitoring of the proper use of veterinary drugs (comply with waiting times, ensuring that the proper dosages are being used, …) in order to protect consumers' health. The use of anabolic substances and unauthorized substances is forbidden.

Legal framework:

1. Council Directive 96/23/EC of 29 April 1996 on measures to monitor certain substances and residues thereof in live animals and animal products and repealing Directives 85/358/EEC and 86/469/EEC and Decisions 89/187/EEC and 91/664/EEC

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Remarks: /

Explanatory notes to the results: In 2008, two samples taken from cattle farms turned out to be positive for group B2 (dexomethason (1) and prednisolon (1)). Fourteen samples from slaughterhouses turned out to be positive. Six positive samples came from cows and were positive for group B1 (amoxycillin (1) and sulfadimidine (1)) en groep B2 (flufenamine acid (1), dexomethason (1) and prednisolon (2)). Eight positive samples came from pigs and were positive for group A (chloramfenicol (1)), group B1 (amoxycillin (1), benzylpenicillin (1) and sulfadiazine (2)), and group B2 (flufenamine acid (1), flunixin (1) and fenylbutazone (1)).
In 2007, two samples taken from cattle farms turned out to be positive for group B2 (prednisolon (2)). Nineteen samples from slaughterhouses turned out to be positive. Four positive samples came from cows and were positive for group B1 (amoxycillin (1), sulfadiazine (1) and sulfadimethoxine (1)) and for group B2 (salinomycin (1) and prednisolon (2)). Fifteen positive samples came from pigs and were positive for group B1 (amoxycillin (6), ampicillin (3), benzylpenicillin (2), doxycyclin (1), spiramycin (1), sulfadiazine (2), sulfadimethoxin (1) and sulfadoxin (1)).

FSI14: Sulfite in minced meat

Description: The percentage of samples of minced meat that is tested for sulfite in the distribution sector and that were conform.

Results:

Year	Number of samples	% conformity	Limit
2008	936	91,1%	Absent
2007	480	94%	Absent
2006	634	91,2%	Absent

Calculation of the indicator: Compared to 2007, there was decrease of 3,09% in 2008.

Interpretation: This indicator serves as a criterion for the presence of sulphite in chopped or minced meat. The presence of sulphite may lead to an enhanced exposure and may adversely affect the overall food safety. An increase of this indicator, namely an increase of the percentage of conform samples, thus also implies that the food safety situation has improved.

Part of the chain to which the indicator applies: Transformation and distribution (butcher, wholesale, community kitchen and supermarkets)

Matrix: Minced meat

Category: control

Justification for the selection this indicator: Among the forbidden additives, sulphite is still widely used as a preservation agent. By using sulphite, tainted meat can be given a fresh appearance, which may compromise food safety. Sulphite is also an allergenic substance starting from a concentration of 10 ppm onwards.
This food safety indicator is an indicator for the chemical hazard: prohibited additive (prohibited preservative).

Additional information: Sulphite is added to minced meat in order to preserve/stabilize its red colour. This way, tainted or rotten meat is given a fresh appearance, which constitutes a potential hazard to the overall food safety situation. That is why it is legally forbidden to add sulphite to pure or raw minced meat. The adding of sulphite as an ingredient is allowed for certain processed minced meats, on condition that the legally specified maximum limit is not exceeded in the finished product. One must also check whether or not sulphite appears on the list of authorized ingredients.

Legal framework:

1. Royal Decree of 1 March 1998 on in foodstuffs allowed additives except for colorants and sweeteners

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Remarks: This indicator also includes analyses that fall beyond the scope of the monitoring program.

Notes: In 2008, 936 samples were tested on the presence of sulphite in minced meat. These samples were collected in butcher's shops, wholesalers, industrial kitchens and supermarkets. 83 of these samples turned out to be non-conform. The products concerned included minced meat (pork, beef, horse, and sheep), and prepared products such as américain, hamburgers, minced meat balls with lard ('blind finches'), sausages, ….

FSI15: Dioxins and dioxin-like PCBs in dairy products and eggs

Description: The percentage of samples of dairy products and eggs that is tested for dioxins and dioxin-like PCBs and that were conform.

Results:

Year	Number of samples	% conformity	Limit
2008	470	99,15%	Different maximum values in Regulation (EC) No 1881/2006
2007	838[3]	99,51%	Different maximum values in Regulation (EC) No 1881/2006

Calculation of the indicator: Compared to 2007, there was a decrease of 0,36% in 2008.

Interpretation: This indicator serves as a criterion for the presence of dioxins and DL-PCB's in dairy products and eggs below the maximum allowed limit. Concentrations of dioxins and DL-PCB's above the maximum allowed level may lead to an enhanced exposure, which adversely affects overall food safety. An increase of this indicator, viz. an increase of the percentage of conform samples, thus also implies that the food safety has improved.

Part of the chain to which the indicator applies: primary production (dairy cattle, milk transformed at the farm and production of eggs) and transformation

Matrix: Milk and eggs

Category: Control

Justification for the selection of this indicator: Dioxins are toxic compounds that are classified as carcinogenic (group 1) and probably carcinogenic (group 2A). As such, they constitute a hazard to public health. Dairy products and eggs largely contribute to the risk of exposure experienced by consumers.
This food safety indicator is an indicator for the chemical hazard: environmental contaminant

Additional information: The term "dioxin" is generally used for referring to chemical compounds such as polychlorinated dibenzo-p-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF). These halogenated aromatic hydrocarbons are widespread and can easily accumulate in the food chain due to their lipophile nature. Out of the 210 congeners that belong to the PCDD and PCDF group, 17 are toxic. Polychlorinated biphenyls (PCB's) make up a Group of 209 congeners, 12 of which having toxicological properties that are similar to those of dioxins. These compounds are indicated with term "dioxin-like PCB" (DL-PCB or PCB DL). 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (TCDD) or "Sevesodioxin" is the most toxic molecule and has been classified as carcinogenic to man by the World Health Organisation (WHO) (group 1, IARC 1997). PCBs have been classified as probably carcinogenic to man (group 2 A) (IARC, 1997).

Legal framework:

1. Commission Regulation (EC) No 1881/2006 of 19 December 2006 setting maximum levels for certain contaminants in foodstuffs

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Notes: The analyses for dioxins and for DL-PCBs are considered mutually independent. In other words, the number of samples that is analysed for dioxins will be added to the number of samples that is analysed for DL-PCBs.

Explanatory notes to the results: In 2008, 43% of the samples were taken in primary production, 36% of the samples were taken in transformation, and 21% in distribution. 36 egg samples were analysed, whereby the eggs were proportioned over the respective 'housing systems' as follows:

[3] In 2007 no results were reported in the transformation sector

cage (28%), deep litter (22%), free-range (22%) and bio (28%).
In 2007, 81% of the samples were taken in primary production, while 19% of the samples were taken in distribution. 377 egg samples were analysed, whereby the eggs were proportioned over the respective ‘housing systems’ as follows: battery (21%), deep litter (22%), free-range (36%) and bio (21%).

FSI16: Mercury in mollusks, crustaceans and fish

Description: The percentage of samples of mollusks, crustaceans and fish that is tested for the presence of mercury and that turned out to be conform.

Results:

Year	Number of samples	% conformity	Limit
2008	212	100%	Different maximum values in Regulation (EC) No 1881/2006
2007	153	100%	Different maximum values in Regulation (EC) No 1881/2006

Calculation of the indicator: Compared to 2007, there was increase of 0% in 2008.

Interpretation: This indicator serves as a criterion for the presence of mercury in fish, mollusks and crustaceans below the maximum allowed level as defined by law. The presence of mercury in concentrations exceeding the maximum allowed level may lead to an enhanced exposure and may adversely affect overall food safety. An increase of this indicator, that is, an increase of the percentage of conform samples, thus also implies that the food safety situation has improved.

Part of the chain to which the indicator applies: Primary production (fish farming, fishing mollusks and crustaceans)

Matrix: fish, mollusks and crustaceans

Category: Control

Justification for the selection of this indicator: Mercury is a toxic substance that constitutes a hazard to public health. Fish, mollusks and crustaceans are an important source for the intake of mercury through food.
This food safety indicator is an indicator for the chemical hazard: environmental contaminant.

Additional information: Mercury is an environmental contaminant that is toxic to man, even in low concentrations. Hg is persistent and, as such, not degradable, neither in the environment, nor during processing of foodstuffs or in the human body (although it is partially excreted by it). Fish, mollusks and crustaceans are contaminated when the water they live in is polluted.

Legal framework:

1. Commission Regulation (EC) No 1881/2006 of 19 December 2006 setting maximum levels for certain contaminants in foodstuffs

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Remarks: /

Explanatory notes to the results: In 2008, most of the samples (>75%) were taken in fish markets and farming areas (oysters). The other samples were taken in aquaculture plants, in distribution and in transformation. In 2007, most of the samples (about 70%) were taken in distribution. The remaining samples were taken in fish markets and in transformation.

FSI17: Residues from pesticides/herbicides in vegetables and fruit originating from other EU-countries and third countries

Description: The percentage of samples of vegetables and fruit originating from other EU-countries and third countries that is tested for the presence of herbicides/pesticides and that were conform.

Results:

Year	Number of samples	% conformity	Limit
2008	862	92,3%	MRL (Maximum Residue Level)[4]
2007	770	91,2%	MRL (Maximum Residue Level)

Calculation of the indicator: Compared to 2007, there was increase of 1,21% in 2008.

Interpretation: This indicator serves as a criterion for the presence of residues from pesticides and herbicides in vegetables and fruit below the MRL limit. The presence of residues from pesticides and herbicides in concentrations exceeding the MRL limit may lead to an enhanced exposure and may cause problems with regard to food safety. However, this also depends on the method of preparation, as rinsing, skinning and cooking can considerably reduce the degree of exposure. The presence of non-conform samples does however indicate that good agricultural practices (GAP) were not always implemented. In increase of this indicator, namely an increase of the number of conform samples, thus implies that the GLP-practices are being more strictly observed, which indirectly reflects an improvement of the overall food safety situation.

Part of the chain to which the indicator applies: import

Matrix: Vegetables and fruit

Category: Control – Import

Justification for the selection of this indicator: Pesticides and herbicides constitute a potential hazard to public health, because improper use may lead to an exposure in excess of the ADI (Acceptable Daily Intake). Values exceeding MRL indicate that the GLPs were not observed strictly enough. This Food Safety Indicator for the chemical hazard: residues from herbicides/pesticides

Additional information: Phytopharmaceutical products are used in the cultivation of vegetables and fruit for the purpose of controlling pests or plagues (such as: insects, fungi, phytopathogens and weeds). They often leave behind all kinds of residues in crops. MRLs have been set for authorized pesticides/herbicides, as specified in the relevant regulations. These MRLs enable adequate monitoring of the proper use of these herbicides/pesticides (using authorized products, using the appropriate dosages and observing the required waiting times before harvesting, …), and also contribute to a better protection of consumers' health.

Legal framework:

1. Regulation (EC) No 396/2005 of the European parliament and of the Council of 23 February 2005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin and amending Council Directive 91/414/EEC

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Notes: Foodstuffs that may probably be in excess of the MRL and that are consumed frequently are monitored very closely. As from 1st September 2008, the MRLs are harmonised throughout the entire European Union (Regulation (EC) No. 396/2005), in order to protect European consumers and to enable free movement of foodstuffs. The FASFC has however implemented this legislation as early as July 2007. Before July 2007, only national MRLs were being used. These MRL-related changes

[4] An overview of the applicable MRL's can be found at http://ec.europa.eu/sanco_pesticides/public/index.cfm

make it difficult to make a sound comparison of the results for 2007 and 2008.
Explanatory notes to the results: /

FSI18: Forbidden colorants

Description: The percentage of samples that is tested for forbidden colorants and that were conform.

Results:

Year	Number of notifications	% conformity	Limit
2008	246	100%	Absent
2007	228	100%	Absent

Calculation of the indicator: Compared to 2007, there was increase of 0% in 2008.

Interpretation: This indicator serves as a criterion for the absence of forbidden colorants in a wide range of foodstuffs. The presence of forbidden colorants may lead to an enhanced exposure en may adversely affect the overall food safety. An increase of this indicator, namely an increase of the percentage of conform samples, thus implies that the overall food safety has improved.

Part of the chain to which the indicator applies: Import

Matrix: Different foodstuffs

Category: Control – Import

Justification for the selection of this indicator: The use of a certain number of colorants is prohibited, due to the degree of toxicity of these substances. The types of forbidden colorants that are traced and found vary strongly from year to year. The tracing of a forbidden colorant is most often conducted after a report has been made via the Rapid Alert System for Food and Feed (RASFF) and/or after an incident has occurred. As a consequence, this indicator applies to all forbidden colorants, without further specification.
This food safety indicator is an indicator for the chemical hazard: forbidden additives (colorants).

Additional information: 'Sudan red' I, II, III and IV are synthetic azo-colorants, which are split up into carcinogenic amines (category 2) in the body after oral intake. Chemically speaking, 'Para-red' is very similar to Sudan I. Rhodamine B is a reddish to violet synthetic fluorescent colorant, and possibly carcinogenic (category 3: carcinogenity for human beings cannot be classified)

Legal framework:

1. Royal decree from 9 October 1996 on the additives that are authorized for use in foodstuffs.
2. Regulation (EC) No 1333/2008 of the European Parliament and of the Council of 16 December 2008 on food additives.

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Notes: All samples are taken in the distribution sector and at the moment of importation.

Forbidden colorants include all colorants that are unauthorized for use in foodstuffs of whatever type. Colorants that are authorized for use in a limited number of foodstuffs, subject to the requirements with regard to the ADI limits (Acceptable Daily Intake), are not considered as forbidden colorants.

Analyses for forbidden colorants are to be considered mutually independent. In other words, the total sum will be the sum of the numbers of samples that were analyzed separately for each respective forbidden colorant.

The results for 2007 are incomplete

Explanatory notes to the results:
In 2007, 187 samples of chili and curry powder, curcuma and palm oil were analyzed for the presence of Sudan Red, and 41 samples of curcuma, curry powder and paprika powder were analyzed for 'para-red'. In the same year, analyses were also made for orange II.
In 2008, 114 samples of chili and curry powder, curcuma and palm oil were analyzed for the presence of the forbidden substance 'Sudan Red' I, II, III, and IV. In 44 of these samples, analyses were also made for the forbidden colorants para-red, orange II and rhodamine B.

FSI19: Chemical and microbiological hazards in imported animal products intended for human consumption

Description: The percentage of samples of animal products intended for human consumption that was taken in border inspection stations and that is tested within the context of the control plan and that were conform.

Results:

Year	Number of samples	% conformity	Limit
2008	1586	99%	Legal limits
2007	1248	99,3%	Legal limits

Calculation of the indicator: Compared to 2007, there was a decrease of 0,30% in 2008.

Interpretation: This indicator serves as a criterion for the presence of chemical or microbiological hazards in animal products (including monitoring of radioactivity and the use of ionizing radiation) When these risk factors are present in concentrations exceeding legally defined limits, this may lead to an enhanced exposure, which may adversely affect overall food safety. An increase of this indicator, namely an increase of the percentage of conform samples, is an indication that the food safety has improved.

Part of the chain to which the indicator applies: Import

Matrix: Animal products

Category: Control – Import

Justification for the selection of this indicator: This indicator is representative for the presence of microbiological and chemical hazards (including radioactivity and the use of ionizing radiation) in animal products that are imported form countries outside the European Union.
This food safety indicator is an indicator for various chemical and microbiological hazards.

Additional information: All shipments entering the European Union via Belgium are subject to the submission of a Belgian border inspection post. These shipments first need to undergo a document control. Next, it is checked whether or not the shipped goods tally with these documents. As a third step, control samples may be taken. Sampling may be conducted within the scope of protective measures (as imposed by a decree of the European Commission), or by way of follow-up of the RASFF(*) reports ((*)Rapid Alert System for Food and Feed) or the monitoring plan of the FASFC.

Legal framework:

1. Divers legal texts.

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Remarks: /

Explanatory notes: In 2008, the causes for non-conformities were as follows: nitrofurans (9), leucomalachite green (1), tilmicosine (1), metronidazole (2), salinomycine (1), cadmium (1), benzo(a)pyrene (1). In 2007, the causes for non-conformities were: nitrofurans (6), heavy metals (2), benzoic acid (1).

FSI20: Dioxins and dioxin-like PCBs in feed

Description: The percentage of samples of feed (raw materials, mixed fodders, premixtures and additives) that is tested for dioxins and dioxin-like PCBs and that were conform.

Results:

Year	Number of samples	% conformity	Limit
2008	1264	100%	Diverse maximum levels in Min. Decree of 12/02/1999
2007	1441	99,2%	Diverse maximum levels in Min. Decree of 12/02/1999

Calculation of the indicator: Compared to 2007, there was an increase of 0,81% in 2008.

Interpretation: This indicator serves as a criterion for the presence of dioxins and DL-PCBs in animal feed below the maximum allowed level. The presence of dioxins and DL-PCBs in animal feed in concentrations exceeding the maximum allowed limits may adversely affect overall food safety. An increase of this indicator, namely an increase of the percentage of conform samples, thus also serves as an indication that the overall food safety has improved.

Part of the chain to which the indicator applies: Suppliers: feed

Matrix: Feed

Category: Control

Justification of the choice of the indicator: Dioxins are toxic compounds that are classified as carcinogenic (group 1) and probably carcinogenic (group 2A), and accordingly constitute a potential hazard to public health. Dioxins and DL-PCBs find their way into foodstuffs of animal origin via animal feed.
This food safety indicator is an indicator for the chemical hazard: environmental contaminant

Additional information: The term “dioxin” is generally used for referring to chemical compounds such as polychlorinated dibenzo-p-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF). These halogenated aromatic hydrocarbons are widespread and can easily accumulate in the food chain due to their lipophile nature. Out of the 210 congeners that belong to the PCDD and PCDF group, 17 are toxic. Polychlorinated biphenyls (PCB’s) make up a Group of 209 congeners, 12 of which having toxicological properties that are similar to those of dioxins. These compounds are indicated with term “dioxin-like PCB” (DL-PCB or PCB DL). 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (TCDD) or “Sevesodioxin” is the most toxic molecule and has been classified as carcinogenic to man by the World Health Organisation (WHO) (group 1, IARC 1997). PCBs have been classified as probably carcinogenic to man (group 2 A) (IARC, 1997).

Legal framework:

1. Ministerial Decree of 12 February 1999 on the trade and the use of products intended for feeding animals

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Notes: The analyses for dioxins and DL-PCBs are considered mutually independent. In other words, the number of samples analyzed for dioxins will simply be added to the number of samples analyzed for DL-PCBs.

Explanatory notes to the results: /

FSI21: Contact materials			
Description: The percentage of samples of contact materials per year that were conform.			
Results:			
Year	Number of samples	% conform	Limit
2008	719[5]	95,83%	SML (specific migration limit) and GML (global migration limit)
2007	397[6]	95,72%	SML (specific migration limit) and GML (global migration limit)
Calculation of the indicator: Compared to 2007, there was an increase of 0,11% in 2008.			
Interpretation: This indicator serves as a criterion for the migration of chemical components from food contact materials. Exceeding the migration limit may lead to enhanced exposure and may adversely affect the overall food safety. An increase of this indicator, namely an increase of the percentage of conform samples, thus also serves as an indication for the improvement of the food safety situation.			
Part of the chain to which the indicator applies: Suppliers: contact materials			
Matrix: not applicable			
Category: Control			
Justification for the selection of this indicator: Chemical components of food contact materials can migrate into foodstuffs. Because the food contact materials showing migration problems vary strongly from year to year, we've opted to incorporate in this indicator any and all food contact materials that are normally being analyzed. Detection of a migrating substance is generally conducted after a report has been made via the Rapid Alert System for Food and Feed (RASFF) and/or after an incident has occurred. This food safety indicator is an indicator for the chemical hazard: residues of food contact material.			
Additional information: Foodstuffs can be contaminated by the materials or objects they get in contact with. Because all foodstuffs tend to get in contact with all kinds of materials, it is important to ensure that these materials do not cause any contamination. This is done by conducting migration tests.			
Legal framework: 1. Regulation (EC) No 1935/2004 of the European Parliament and of the Council of 27 October 2004 on materials and articles intended to come into contact with food and repealing Directives 80/590/EEC and 89/109/EEC 2. Royal Decree of May 11, 1992 on materials and objects intended for contact with foodstuffs. 3. Royal Decree of July 3rd, 2005, on plastic materials and objects intended for contact with foodstuffs.			
Does the indicator meet the set criteria?: ☑ Measurable (availability of quantitative data) ☑ Independent (no overlap between the respective indicators)			

[5] Because of unavailability of data the following analyses were not included in the results of 2008: global migration of plastic and cardboard disposable tableware and flexible silicone molds, migration of isopropylthioxanthone used in printing of tetrabrick packages, migration of nickel and chrome from metal kitchenware, migration of perfluoro-octan acid (PFOA) and perfluor-octan sulfonic acid (PFOS) from paper and cardboard used in fast food, migration of mercaptobenzothiazol from teats of bottles, migration of formaldehyde from cardboard and migration of organic tin from flexible silicone molds.

[6] Because of unavailability of data the following analyses were not included in the results of 2007: migration of chemical substances used in printing of tetrabrick packages, migration of tin from cans, migration of fluor components in pots and pans with a Teflon layer, migration of heavy metals from disposable dishes, migration of aluminium in aluminium foil and aluminium cups, global migration from plastic dishes, gloves and flexible silicone molds.

☑ Reliable (bias sensitivity)
☑ Availability of information contained in existing reports or documents
☑ Relevancy with respect to food safety
☑ Crisp and clear interpretation
☑ Durable
☑ Must clearly reflect the chain approach
☑ The body of indicators must be representative of the entire food chain

Notes: There exists a global migration limit for contact materials of 60 mg/kg, 60 mg/l or 10 mg/dm². In addition, several specific migration limits for specific contact materials have been established.

Explanatory notes to the results: In 2008, the following analyses were conducted: lead and cadmium in ceramics (67, of which 1 was not conform), 4,4-diaminophenylmethane from black nylon kitchen material (123, of which 2 were not conform), aluminium in aluminium foil and aluminium trays (56, of which 1 was not conform), semicarbazide in baby food (30, all of which were conform), semicarbazide in fat-rich foodstuffs (27, all of which were conform), epoxidated soy bean oil in baby food (30, of which 3 were not conform), epoxidated soy bean oil in fat-rich foodstuffs (29, all of which were conform), bisphenol A from polycarbonate (56, all of which were conform), phthalates in baby food (30, all of which were conform), phthalates in fat-rich foodstuffs (29, all of which were conform , formaldehyde from objects containing melamine (200, 9 of which were not conform), and gloves made of silicon (42, 14 of which were not conform).
In 2007, the following analyses were conducted: lead and cadmium in ceramics (65, of which 2 were not conform), 4,4-diaminophenylmethane from black nylon kitchen material (145, of which 14 were no conform), semicarbazide in baby food (12, all of which were conform), semicarbazide in fat-rich foodstuffs (12, all of which were conform), bisfenol A from polycarbonate (47, all of which were conform), and formaldehyde from objects containing melamine (116, of which 1 was not conform).

FSI22: *Salmonella* sp. in meat pigs

Description: The number of meat pig farms that were labelled as a risk farm for *Salmonella* sp., per year. This indicator includes both the newly labelled risk farms within a given year and the farms of which the risk status is being extended for another year.

Results:

Year	Number of farms included in the Salmonella control program	Number of farms without a risk state (%)	Limit
2008	6658	6225 (93,50%)	Not applicable
2007	6978	6709 (96,15%)	Not applicable

Calculation of the indicator: Compared to 2007, there was a decrease of 2,75% in 2008.

Interpretation: Since many years, *Salmonella* has been one of the principal causes of zoonoses. This indicator serves as a criterion for the number of meat-pig farms without a risk status for *Salmonella* sp. This risk status is based on serological tests. An increase of this indicator, namely a decrease of the number of risk farms, is an indication of a better mastering of the Salmonella issue with meat-pigs, and also indirectly implies an improvement of the overall food safety.

Part of the chain to which the indicator applies: Primary animal production: swine

Matrix: not applicable

Category: Control

Justification for the selection of this indicator: *Salmonella* sp. is an important pathogen that needs to be controlled via a chain based approach. This means that this indicator is aimed at an important partial aspect of this chain approach, namely the prevention of faecal contamination and cross contamination in the slaughterhouse and meat cutting plants.
This food safety indicator is an indicator for the biological hazard: zoonoses

Additional information: *Salmonella* is a genus of Gram-negative rod-shaped, facultatively anaerobic bacteria, belonging to the family of the *Enterobacteriaceae,* consisting of over 2000 serotypes. *Salmonella* causes gastro-enteritis (salmonellosis) after an incubation period of 6 to 48 hours. Salmonellosis is characterized by nausea, vomiting, stomach cramps, diarrhoea, headache and fever. *Salmonella* sp. forms part of the natural intestinal flora of, among others, poultry and pigs. The meat is contaminated through contamination of carcasses with faeces of contaminated animals during the slaughtering process, followed by cross-contamination. Products at risk include: fowl, preparations on basis of raw eggs, pig meat, dairy products and chocolate.

Since June 2007, all farms with a capacity of over 30 meat-pigs are screened for *Salmonella sp.* by the farm veterinary surgeon (serological test) every 4 months. Farms with an long-term high prevalence are marked as a 'high-risk farms' (after three consecutive positive screenings).

Legal framework:

1. Royal Decree of 27 April 2007 on the surveillance of Salmonella in swine.
2. Ministerial Decree of 27 April 2007 on the surveillance of Salmonella in swine.
3. Regulation (EC) No 2160/2003 of the European Parliament and of the Council of 17 November 2003 on the control of salmonella and other specified food-borne zoonotic agents

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Remarks: /

Explanatory notes to the results: In 2007, 269 high-risk farms have been reported, as opposed to 433 in 2008.

FSI23: *Salmonella* sp. in layer hens

Description: The percentage of negative layer hen flocks (breeding and production) for *Salmonella* sp., per year.

Results:

Year	Number of flocks	% negative	Limit
2008	942	91,83%	Not applicable
2007	487	94,66%	Not applicable

Calculation of the indicator: Compared to 2007, there was a decrease of 3,00% in 2008

Interpretation: Since many years, *Salmonella* is one of the most important zoonoses. This indicator serves as a criterion for the percentage of negative chicken hatching samples for *Salmonella* sp. An increase of this indicator, namely an increase of the percentage of negative hatching samples, is an indication of a better mastering of the Salmonella issue with regard to layer hens, and thus also indirectly implies that the food safety situation has improved.

Part of the chain to which the indicator applies: Primary animal production: laying hens

Matrix: Not applicable

Category: Control

Justification for the selection of this indicator: *Salmonella* sp. is a pathogen of major importance, requiring control based on a chain approach. This means that this indicator applies to an important partial aspect of this chain approach, namely the primary animal production of meat-pigs. This food safety indicator is an indicator for the biological hazard: zoonoses.

Additional information: In the egg layer sector, control strategies against *S*. Enteritidis and *S*. Typhimurium are being implemented. Vaccination against *S*. Enteritidis is obligatory, while vaccination against *S*. Typhimurium is strongly recommended. During production, each hatch is tested for *Salmonella* every 15 weeks. During the rearing phase, the day-old chicks are subject to bacteriological tests, which will be repeated when they reach the age of 16 weeks. Once a year, official samples are taken at a ratio of one hatching during the course of production for each respective egg layer farm. Eggs of layer hen hatches that turn out to be bacteriologically positive for both serotypes to be controlled will be channelled to the egg processing industry for heat treatment in order to achieve a salmonella-free end product. The other remaining hatches will be officially sampled in order to preclude the presence of *Salmonella*. The chicken roost will be thoroughly cleaned and disinfected and will also be tested for the presence of *Salmonella* before a new hatch will be started. The next hatch that is put up in the same chicken roost will be officially sampled at the age of 24 weeks.

Legal framework:

1. Royal Decree of 27 April 2007 on the control of Salmonella in poultry.
2. Ministerial Decree of 27 April 2007 on the control of Salmonella in poultry.
3. Regulation (EC) No 2160/2003 of the European Parliament and of the Council of 17 November 2003 on the control of salmonella and other specified food-borne zoonotic agents
4. Commission Regulation (EC) No 1168/2006 of 31 July 2006 implementing Regulation (EC) No 2160/2003 as regards a Community target for the reduction of the prevalence of certain salmonella serotypes in laying hens of *Gallus gallus* and amending Regulation (EC) No 1003/2005

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Notes: As for the results for 2007**,** the results of the controls that are done every 15 weeks only start from July 2007 onwards. Prior to this date, only the results of the exit controls are included.

Explanatory notes to the results: In 2008 23 flocks were positive for S. Enteritidis, 1 flock was positive for S. Typhimurium and 53 flocks were positive for other serotypes.

FSI24: *Salmonella* sp. in poultry and pigs

Description: The percentage of samples, taken in poultry and pigs at the level of slaughterhouses and meat cutting plants, that were tested for *Salmonella* sp. and that were conform. Accordingly, this indicator relates to the analysis of carcasses and cut meat of fowl and pigs, collected in slaughterhouses and meat cutting plants.

Results:

Year	Number of samples	% conformity	Limit
2008	1256	89,75%	Process criterium for pig, broiler and turkey carcasses. Action limit.
2007	1248	86,62%	Process criterium for pig, broiler and turkey carcasses. Action limit.

Calculation of the indicator: Compared to 2007, there was an increase of 3,62% in 2008.

Interpretation: Since many years, *Salmonella* is one of the most important zoonoses. This indicator serves as a benchmark for the prevention of *Salmonella* sp. in carcasses and cut meat of pork and poultry above the process criterion. An increase of this indicator, namely an increase of the percentage of conform analyses, thus also indicates an improvement of the overall food safety.

Part of the chain to which the indicator applies: Transformation (slaughterhouse and meat cutting plant)

Matrix: carcasses and cut swine and poultry meat

Category: Control

Justification for the selection of this indicator: *Salmonella* sp. is a pathogen of major importance, requiring control based on a chain approach. This means that this indicator applies to an important partial aspect of this chain approach, namely the primary animal production of meat-pigs. This food safety indicator is an indicator for the biological hazard: zoonoses.

Additional information: *Salmonella* is a genus of Gram-negative rod-shaped, facultatively anaerobic bacteria, belonging to the family of the *Enterobacteriaceae,* consisting of over 2000 serotypes. *Salmonella* causes gastro-enteritis (salmonellosis) after an incubation period of 6 to 48 hours. Salmonellosis is characterized by nausea, vomiting, stomach cramps, diarrhoea, headache and fever. *Salmonella* sp. forms part of the natural intestinal flora of, among others, poultry and pigs. The meat is contaminated through contamination of carcasses with faeces of contaminated animals during the slaughtering process, followed by cross-contamination. Products at risk include: fowl, preparations on basis of raw eggs, pig meat, dairy products and chocolate.

Legal framework:

1. Commission Regulation (EC) No 2073/2005 of 15 November 2005 on microbiological criteria for foodstuffs
2. Regulation (EC) No 2160/2003 of the European Parliament and of the Council of 17 November 2003 on the control of salmonella and other specified food-borne zoonotic agents

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Notes: /

Explanatory notes to the results: In 2008, there was a significant drop of the numbers of positive samples of layer hen carcasses compared to 2007 (54,40% positive in 2007, against 23,40% in 2008). As for the other matrices, a slight decrease of the percentage was noticed, except for cut pork meat (4,1% positive samples in 2007, against 5,7% in 2008).

FSI25: *E. coli* in carcasses and cut meat

Description: The percentage of samples taken in slaughterhouses and meat cutting plants that was tested for *E. coli* and that were conform. Accordingly, this indicator includes samples of carcasses from layer hens and broilers, as well as cut pork and beef meat.

Results:

Year	Number of samples	% conformity	Limit
2008	1164	95,04%	Action limit
2007	1066	93,88%	Action limit

Calculation of the indicator: Compared to 2007, there was an increase of 1,24% in 2008.

Interpretation: *E. coli* is an indicator of the implementation of good work and hygiene practices. The presence of *E. coli* is also an indicator for faecal contamination and for a possible presence of ecologically similar pathogens (e.g. *Salmonella* sp., *E. coli* 0157 or else O157 VTEC, *Yersinia* sp., *Campylobacter* sp.). This indicator is a criterion for the implementation of good work practices and for the prevention of the occurrence and/or spreading of faecal contamination during the slaughtering and cutting process of pork, chickens and beef. An increase of this indicator, namely an increase of the percentage of conform samples, thus also implies that the general hygiene level has improved, which further indicates an improvement of the overall food safety, as there is less chance for contamination with zoonotic pathogens.

Part of the chain to which the indicator applies: Transformation (slaughterhouse and meat cutting plant)

Matrix: laying hen and broiler carcasses and cut swine and beef meat

Category: Control

Justification for the selection of this indicator: *E. coli* is a so-called 'hygiene-indicator'. A good hygiene is of major importance for the slaughtering of animals and the cutting of carcasses, in order to prevent faecal contamination and spreading of zoonotic pathogens through cross-contamination. This Food Safety Indicator is an indicator for the biological hazard: zoonotic pathogens (e.g.. *Salmonella* sp., *E. coli* 0157 or else O157 VTEC, *Yersinia* sp., *Campylobacter* sp.).

Additional information: *E. coli* is a Gram-negative rod-shaped bacterium of the *Enterobacteriaceae* family, belonging to the genus *Escherichia*. *E. coli* is naturally present in the gastrointestinal system of humans and animals. *E. coli* is used as a hygiene indicator. The presence above a given limit value is an indication of an insufficiently hygienic production method in general, and of a possible faecal contamination in particular. Furthermore, the presence of *E. coli* also indicates the possible presence of ecologically similar pathogens (such as *Shigella* sp., *Salmonella* sp.). Certain stems of this bacterium may cause symptoms in humans (gastro-enteritis). These pathogenic *E. coli* stems are classified into a number of groups according to their virulence factors and clinical picture, whereby especially the enterohemorrhagic *E. coli* (EHEC), linked with bloody diarrhoea but also with more severe symptoms such as HUS, are being considered as food-related pathogenic *E. coli.*

Legal framework:

1. Regulation (EC) No 2160/2003 of the European Parliament and of the Council of 17 November 2003 on the control of salmonella and other specified food-borne zoonotic agents.
2. Directive 2003/99/EC of the European Parliament and of the Council of 17 November 2003 on the monitoring of zoonoses and zoonotic agents, amending Council Decision 90/424/EEC and repealing Council Directive 92/117/EEC

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Remarks: /

Explanatory notes to the results: In 2008, 133 samples were taken from layer hen carcasses (68,40% conform), 133 samples were taken from meat chicken carcasses (90,20% conform), 776 samples were taken from cut beef (99,90% conform), and another 122 samples were taken from cut pork meat (98,40% conform). In 2007, 118 monsters were taken from layer hen carcasses (64,40%

conform), as well as 122 samples from meat chicken carcasses (97,50% conform), 290 samples from cut beef (98,60% conform), and another 536 samples from cut pork meat (97,00% conform).

FSI26: *E. coli* in foodstuffs

Description: The percentage of samples of foodstuffs taken in farmstead dairy producers, in the processing sector (with the exception of slaughterhouses and meat cutting plants) and in the distribution sector that was tested for *E. coli* and that were conform.

Results:

Year	Number of samples	% conformity	Limit
2008	1095	97,80%	Legal norms and action limits
2007	732	95,51%	Legal norms and action limits

Calculation of the indicator: Compared to 2007, there was an increase of 2,40% in 2008.

Interpretation: *E. coli* is an indicator of the implementation of good work and hygiene practices. The presence of *E. coli* is also an indicator for faecal contamination and for a possible presence of ecologically similar pathogens (e.g. *Salmonella* sp., *E. coli* 0157 or else O157 VTEC, *Yersinia* sp., *Campylobacter* sp.). This indicator is a criterion for the implementation of good work practices and for the prevention of the occurrence and/or spreading of faecal contamination during the slaughtering and cutting process of pork, chickens and beef. An increase of this indicator, namely an increase of the percentage of conform samples, thus also implies that the general hygiene level has improved, which further indicates an improvement of the overall food safety, as there is less chance for contamination with zoonotic pathogens.

Part of the chain to which the indicator applies: Primary production (farmstead dairy producers), transformation (except slaughterhouses and cutting plants) and distribution.

Matrix: foodstuffs (except laying hen and broiler carcasses and cut swine and beef meat.

Category: Control

Justification for the selection of this indicator: *E. coli* is a so-called 'hygiene-indicator'. A good hygiene is of major importance for the slaughtering of animals and the cutting of carcasses, in order to prevent faecal contamination and spreading of zoonotic pathogens through cross-contamination. This Food Safety Indicator is an indicator for the biological hazard: zoonotic pathogens (e.g.. *Salmonella* sp., *E. coli* 0157 or else O157 VTEC, *Yersinia* sp., *Campylobacter* sp.).

Additional information: *E. coli* is a Gram-negative rod-shaped bacterium of the *Enterobacteriaceae* family, belonging to the genus *Escherichia*. *E. coli* is naturally present in the gastrointestinal system of humans and animals. *E. coli* is used as a hygiene indicator. The presence above a given limit value is an indication of an insufficiently hygienic production method in general, and of a possible faecal contamination in particular. Furthermore, the presence of *E. coli* also indicates the possible presence of ecologically similar pathogens (such as *Shigella* sp., *Salmonella* sp.). Certain stems of this bacterium may cause symptoms in humans (gastro-enteritis). These pathogenic *E. coli* stems are classified into a number of groups according to their virulence factors and clinical picture, whereby especially the enterohemorrhagic *E. coli* (EHEC), linked with bloody diarrhoea but also with more severe symptoms such as HUS, are being considered as food-related pathogenic *E. coli.*

Legal framework:

1. Commission Regulation (EC) No 2073/2005 of 15 November 2005 on microbiological criteria for foodstuffs
2. Commission Regulation (EC) No 852/2004 of the European Parliament and the Council of 29 April 2004 on foodstuff hygiene.
3. Royal Decree of January 14, 2002 on the quality of water intended for human consumption that is packed in food processing plants or used for the production and/or commercialisation of foodstuffs in general.

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Remarks: It is possible that a small percentage of the samples was taken outside of the monitoring

program.
Explanatory notes to the results: In 2007, as well as in 2008, about 64% of the samples were taken in distribution (incl. farm dairy), and another 36% during processing.

FSI27: *Listeria monocytogenes* in foodstuffs

Description: The percentage of samples of foodstuffs taken in farmstead producers of dairy products, in the processing sector and in the distribution sector that was tested for *Listeria monocytogenes* and that were conform.

Results:

Year	Number of samples	% conformity	Limit
2008	5055	98,2%	Food safety criteria and action limits
2007	1872[7]	98,16%	Food safety criteria and action limits

Calculation of the indicator: Compared to 2007, there was increase of 0,04% in 2008.

Interpretation: *Listeria monocytogenes* is an important food pathogen because of the severe health consequences caused by this pathogen. This indicator is a criterion for the presence of *L. monocytogenes* in foodstuffs. As contamination with *L. monocytogenes* often involves environment or setting related factors (production environment or farm environment), the proper control of *L. monocytogenes* also indirectly indicates that good working practices are being used. An increase of this indicator, namely an increase of the percentage of conform samples, also implies an improvement of overall food safety (both directly and indirectly).

Part of the chain to which the indicator applies: Primary production (farmstead dairy production), transformation and distribution

Matrix: Foodstuffs (vegetable as well as animal based)

Category: Control

Justification of the choice of the indicator: *Listeria monocytogenes* is a pathogen that enters into foodstuffs via the environment and personnel working in establishments where food is being processed. This pathogen requires a strict follow-up, in view of the severity of the health consequences caused by it.
This food safety indicator is an indicator for the biological hazard: zoonoses and environmental contaminant

Additional information: *Listeria monocytogenes* is a mobile Gram-positive rod-shaped bacterium that is psychrotrophic in nature and therefore may thrive under refrigeration temperatures. Listeriosis is characterized by blood poisoning (septicemia), meningitis, and spontaneous abortion or stillbirth with pregnant women. These symptoms are preceded by light influenza-like symptoms (headache, fever). The incubation period varies from a few days up to three weeks. The main group at risk with respect to listeriosis is the YOPI group (Young, Old, Pregnant and Immunodeficient). *L. monocytogenes* is widespread in the natural environment. This bacterium can be isolated in nature, more in particular out of the soil and from several types of animals, but is also often found in production environments where it can turn into a 'domestic flora' in case cleaning and disinfection procedures are not fully met. This also means that *L. monocytogenes* is a typical environmental contaminant. *L. monocytogenes* is primarily associated to the following 3 types of food:

- raw foodstuffs (e.g. raw milk, raw vegetables, and raw fish);
- processed foodstuffs with a prolonged shelf life, that were not subjected to heat treatment (e.g. soft cheeses prepared with raw milk, cold smoked fish);
- processed foodstuffs with a prolonged shelf life that were subjected to heat treatment, but are affected by a post-contamination (e.g. cut or sliced pre-packed cooked meat products).

Legal framework:

1. Commission Regulation (EC) No 2073/2005 of 15 November 2005 on microbiological criteria for foodstuffs

Does the indicator meet the set criteria?:

☑ Measurable (availability of quantitative data)
☑ Independent (no overlap between the respective indicators)
☑ Reliable (bias sensitivity)

[7] For the year 2007, no results are included for industrial dairy farms and farmstead dairy producers, because of a lack of detailed results.

☑ Availability of information contained in existing reports or documents
☑ Relevancy with respect to food safety
☑ Crisp and clear interpretation
☑ Durable
☑ Must clearly reflect the chain approach
☑ The body of indicators must be representative of the entire food chain

Remarks: It is possible that a small percentage of the samples was taken outside of the monitoring program.

Explanatory notes to the result: In 2008, about 70% of the samples were taken in distribution (including farmstead dairy products) and about 30% in transformation. In 2007, about 75% of the samples were taken in distribution, and about 25% in transformation. For the year 2007, no results are included for industrial dairy farms and farmstead dairy producers, because of a lack of detailed results.

FSI28: Foodborne outbreak

Description: The number of reported individuals affected by a collective food toxin infection (CFTI), per year and per 100.000 inhabitants.

Results:

Year	Number of individuals with a CFTI per 100.000 inhabitants	% conformity	Limit
2008	9,37	Not applicable	Not applicable
2007	8,63	Not applicable	Not applicable
2006	9,83	Not applicable	Not applicable
2005	6,07	Not applicable	Not applicable

Calculation of the indicator: Compared to the mean value of 2005, 2006 and 2007 there was an increase of 14,57% in 2008

Interpretation: This indicator serves as a criterion for the occurrence of CFTI's. A decrease of this indicator, namely a decrease of the number of reported CFTI's, thus also indicates an improvement of the overall food safety.

Part of the chain to which the indicator applies: Suppliers (feed), primary production, transformation, distribution, consumer, import and storage and transport by third parties.

Matrix: Not applicable

Category: Public health

Justification of the choice of the indicator: This indicator measures the food safety for consumers, and more in particular the number of CFTI's. This also means that this indicator represents the most direct measurement method for food safety. However, underreporting must be taken into account. On the other hand, such underreporting appears to be of a systematic nature and is stable over the years.
This food safety indicator is an indicator for the biological hazard: microbiological.

Additional information: Food toxico-infection is a generic term for infections or intoxications caused by the consumption of contaminated food or water. One speaks of a collective food toxico-infection when two or more persons show the same symptoms under the same circumstances, and whereby there also exists a (probably) causal relationship with one and the same food source. The incidence of CFTI's is presumably being underestimated. Among other factors, this has something to do with problems relating to establishing the right diagnose, or finding the link between a CFTI and the food concerned, or even an inadequate reporting of CFTI outbreaks. FTI's are not always reported, and certainly not when the symptoms are relatively mild. Nevertheless, even milder diseases may prove to be of major socio-economical importance (absence from work, ….).

Legal framework: /

Does the indicator meet the set criteria?:

- ☑ Measurable (availability of quantitative data)
- ☑ Independent (no overlap between the respective indicators)
- ☑ Reliable (bias sensitivity)[8]
- ☑ Availability of information contained in existing reports or documents
- ☑ Relevancy with respect to food safety
- ☑ Crisp and clear interpretation
- ☑ Durable
- ☑ Must clearly reflect the chain approach
- ☑ The body of indicators must be representative of the entire food chain

Remarks: /

Explanatory notes to the results: In 2008, a total of 999 affected individuals were reported, of which 34 were hospitalized. In 2008, most of the CFTI's as well as most of the affected individuals were due to the norovirus. In 2007, 913 affected individuals were reported, of which 75 have been

[8] Underreporting is inherent to this indicator. However, as said underreporting is systemic in nature and constant over the years, this indicator can be deemed reliable for reflecting the evolution of the number of salmonellosis infections in humans.

hospitalized. In 2007, norovirus was the most frequent cause for CFTI. In 2006, 1033 affected individuals were reported, of which 110 have been hospitalized. In 2006, *Salmonella* was the most frequent cause for CFTI.

FSI29: Salmonellosis in humans			
Description: The number of reported cases of human salmonellosis (the number of humane *Salmonella* strains received by the National Reference Centre for *Salmonella* and *Shigella*), per year and per 100.000 inhabitants.			
Results:			
Year	Number of reported individuals of Salmonellosis per 100.000 inhabitants	% conformity	Limit
2008	36,97[9]	Not applicable	Not applicable
2007	37,55[10]	Not applicable	Not applicable
2006	35,13[11]	Not applicable	Not applicable
2005	47,06[12]	Not applicable	Not applicable
Calculation of the indicator: Compared to the mean value of 2005, 2006 and 2007 there was a decrease of 7,37% in 2008			
Interpretation: This indicator serves as a criterion for the number of persons that have incurred a *Salmonella*-infection. A decrease of this indicator, in other words a smaller number of persons affected by Salmonella, also is an indication that the overall food safety has improved.			
Part of the chain to which the indicator applies: Suppliers (feed), primary production, transformation, distribution, consumer, import and storage and transport by third parties			
Matrix: Not applicable			
Category: Public health			
Justification of the choice of the indicator: This indicator measures the food safety for consumers, and more in particular the number of Salmonella cases with humans. This means that this indicator represents the most direct measurement method for food safety. However, underreporting must be taken into account. On the other hand, such underreporting appears to be of a systemic nature and has been stable over the past 20 years. This food safety indicator is an indicator for the biological hazard: zoonose.			
Additional information: *Salmonella* is a genus of Gram-negative rod-shaped, facultatively anaerobic bacteria, belonging to the family of the *Enterobacteriaceae,* consisting of over 2000 serotypes. *Salmonella* causes gastro-enteritis (salmonellosis) after an incubation period of 6 to 48 hours. Salmonellosis is characterized by nausea, vomiting, stomach cramps, diarrhoea, headache and fever. Products at risk include: fowl, preparations on basis of raw eggs, pig meat, dairy products and chocolate. *Salmonella* is heat sensitive and is killed when foodstuffs are sufficiently heated. Raw or insufficiently cooked products and cross-contamination[13] are the most important causes of infection. Adequate heating, cooling and hygienic manipulation will largely contribute to the prevention of *Salmonella* infections.			
Legal framework: /			
Does the indicator meet the set criteria?: ☑ Measurable (availability of quantitative data) ☑ Independent (no overlap between the respective indicators) ☑ Reliable (bias sensitivity)[14]			

[9] Source: National Referencecenter for Salmonella and Shigella, 2008, Annual Report, 44p

[10] Source: National Referencecenter for Salmonella and Shigella, 2007, Annual Report, 41p

[11] Source: National Referencecenter for Salmonella and Shigella, 2006, Annual Report, 38p

[12] Source: National Referencecenter for Salmonella and Shigella, 2005, Annual Report, 48p

[13] Crosscontamination occurs when cooked products come into contact with raw products of contaminated materials (as for instance the cutting board).

[14] Underreporting is inherent to this indicator. However, as said underreporting is systemic in nature and constant over the years, this indicator can be deemed reliable for reflecting the evolution of the number of salmonellosis infections in humans.

☑ Availability of information contained in existing reports or documents ☑ Relevancy with respect to food safety ☑ Crisp and clear interpretation ☑ Durable ☑ Must clearly reflect the chain approach ☑ The body of indicators must be representative of the entire food chain
Remarks: /
Explanatory notes to the results: /

FI30: Listeriosis in humans

Description: The number of reported cases of listeriosis per year and per 100.000 inhabitants.

Results:

Year	Number of reported cases of listeriosis per 100.000 inhabitants	% conformity	Limit
2008	0,60[15]	Not applicable	Not applicable
2007	0,54[15]	Not applicable	Not applicable
2006	0,64[15]	Not applicable	Not applicable
2005	0,59[15]	Not applicable	Not applicable

Calculation of the indicator: Compared to the mean value of 2005, 2006 and 2007 there was an increase of 1,72% in 2008

Interpretation: This indicator serves as a criterion for the number of persons having incurred an invasive infection with *Listeria monocytogenes*. A decrease of this indicator (in other words: less persons having incurred a *Listeria monocytogenes* infection) also indicates that the food safety has improved.

Part of the chain to which the indicator applies: Suppliers (feed), primary production, transformation, distribution, consumer, import and storage and transport by third parties

Matrix: Not applicable

Category: Public health

Justification of the choice of the indicator: This indicator measures the food safety for consumers, and more in particular the number of Salmonella cases with humans. This means that this indicator represents the most direct measurement method for food safety. However, underreporting must be taken into account. On the other hand, such underreporting appears to be of a systemic nature and has been stable over the past 20 years.
This food safety indicator is an indicator for the biological hazard: zoonose.

Additional information: *Listeria monocytogenes* is a mobile Gram-positive rod-shaped bacterium that is psychrotrophic in nature and therefore may thrive under refrigeration temperatures. Listeriosis is characterized by blood poisoning (septicemia), meningitis, and spontaneous abortion or stillbirth with pregnant women. These symptoms are preceded by light influenza-like symptoms (headache, fever). The incubation period varies from a few days up to three weeks. The main group at risk with respect to listeriosis is the YOPI group (Young, Old, Pregnant and Immunodeficient). *L. monocytogenes* is widespread in the natural environment. This bacterium can be isolated in nature, more in particular out of the soil and from several types of animals, but is also often found in production environments where it can turn into a 'domestic flora' in case cleaning and disinfection procedures are not fully met. This also means that *L. monocytogenes* is a typical environmental contaminant. *L. monocytogenes* is primarily associated to the following 3 types of food:

- raw foodstuffs (e.g. raw milk, raw vegetables, and raw fish);
- processed foodstuffs with a prolonged shelf life, that were not subjected to heat treatment (e.g. soft cheeses prepared with raw milk, cold smoked fish);
- processed foodstuffs with a prolonged shelf life that were subjected to heat treatment, but are affected by a post-contamination (e.g. cut or sliced pre-packed cooked meat products).

Legal framework: /

Does the indicator meet the set criteria?:

☑ Measurable (availability of quantitative data)
☑ Independent (no overlap between the respective indicators)

[15] Source: Referencelaboratory Listeriosis, 2008, 7p

☑ Reliable (bias sensitivity)[16] ☑ Availability of information contained in existing reports or documents ☑ Relevancy with respect to food safety ☑ Crisp and clear interpretation ☑ Durable ☑ Must clearly reflect the chain approach ☑ The body of indicators must be representative of the entire food chain
Remarks: /
Explanatory notes to the result: /

[16] Underreporting is inherent to this indicator. However, as said underreporting is systemic in nature and constant over the years, this indicator can be deemed reliable for reflecting the evolution of the number of listeriosis infections in humans.