



# Food Safety Performance Monitor

## *Methodology*

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### Introduction

We collected data for the following four indicators: (i) outbreaks of food-borne disease, (ii) certifications of good practices within the food industry, (iii) pro-active approach to notifying food safety issues to the European Rapid Alert System for Food and Feed (RASFF), and (iv) food imported from outside the European Union (hereinafter: EU). We then combined the four to produce a composite score, 'Food Safety Performance'. At the end of this document, a table summarizes the selected indicators. A brief analysis of the results, complemented by higher-level reflections and conclusions, is available in the main report.<sup>1</sup>

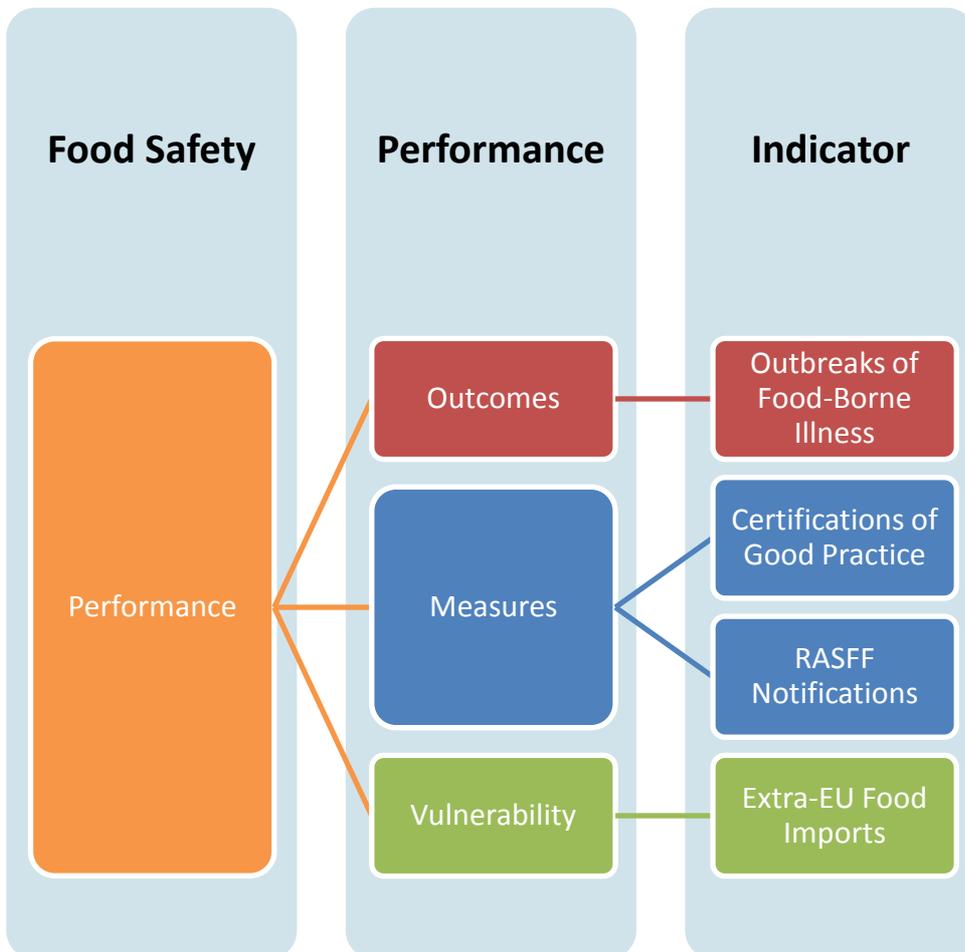
### Composite Performance Score

The overall performance score is calculated by placing all the scores on a scale from 0 (lowest performance) 1 (highest performance) and taking an average score of the four (in essence, the sum total of the component performance scores, divided by 4).<sup>2</sup> Our indicators are chosen and balanced to reflect overall performance in terms of **outcomes, measures taken, and vulnerability**. Figure 1 outlines the indicators and what they measure.

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<sup>1</sup> The reader is referred to the main report which can be retrieved by returning to the main page and clicking the 'Download Report as PDF' button. Our GeoRisQ Monitor is subject to change over time with the benefit of new data and expert contributions as they become available.

<sup>2</sup> In rare cases, data for some countries was missing for certain indicators. In this event, we averaged the score for the remaining indicators to produce the composite score.



**Figure 1: Summary of Indicators**

The composite index ‘Farm to Fork and Further’ allows for a synthetic measure of the selected drivers of food safety challenges, an intentional aggregation of separable facts, and a form of analysis that is more conveniently presented. A number of choices have to be made when building a composite index, in particular with regard to the selection of indicators, normalization of scores, weighting schemes, and dealing with missing data. These choices could be subject to debate. It may also present methodological issues in terms of robustness of the results. In spite of this word of caution, we do consider it useful to provide an aggregate view of different aspects of food safety performance.

Our monitor and its indicators have certain broad features in common with an existing World Ranking of Food Safety Performance from the Johnson-Shoyama Graduate School of Public Policy. While our monitor looks at the 27 Member States of the EU, the Johnson-Shoyama report focuses on 16 OECD countries.<sup>3</sup>

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<sup>3</sup> Sylvain Charlebois, *World Ranking: 2010 Food Safety Performance* (Canada: Johnson-Shoyama Graduate School of Public Policy, May 2010).



Whereas our monitor looks at a selection of 4 indicators covering 3 aspects of food safety performance (outcomes, measures taken and vulnerability), the Johnson-Shoyama report uses 11 indicators across 4 categories (consumer affairs, biosecurity, governance and traceability). There is a good deal of similarity in the indicators used; all four of ours feature in a similar spirit in the Johnson-Shoyama report. Reasons for excluding others from our report varied. In some cases, data simply were not available for us to adapt the Johnson-Shoyama indicators to rate EU Member States. In other cases, our view differed on the significance of an indicator. For example, on the use of agricultural chemicals, we chose not to include an indicator as this could show two conflicting things, making for a potentially misleading picture: on the one hand, the use of chemicals indicates the prevention of biological hazards such as pests, but on the other hand it also suggests a chemical hazard.

Another difference is our use of a numerical scale to rank countries, compared to the more straightforward trinomial scale (regressive, moderate progressive) employed by the Johnson-Shoyama report, which was more suited to a ranking based on qualitative indicators. Our focus on quantitative measures allows for a more detailed scale in the ranking.

### Outbreaks of Food-borne Disease

For outbreaks<sup>4</sup> we used the 'reporting rate' published by the European Food Safety Authority (EFSA), which measures the number of outbreaks of food-borne illness per 100,000 population.<sup>5</sup> This indicator looks at outcomes only, leaving outside of the scope of consideration possible variances in states' detection and reporting systems. We compensate for this in the indicator on notifications to the RASFF.

Our GeoRisQ Monitor measures performance. The relationship between performance and the rate of outbreaks is inverse: fewer outbreaks indicates better performance. Therefore for this indicator we ranked countries on a scale and inverted it so that the country with the lowest rate of outbreaks scored 1 and the country with the highest rate scored 0.

### Certifications

Certifications of good practices within the food industry are an indicator of measures taken. For this indicator we look at the number of food establishments certified for their exemplary safety practices. Of particular interest to us were certification schemes which make use of what is referred to as a 'comprehensive approach'.<sup>6</sup> This involves two aspects. The first is correct implementation of the 'hazard

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<sup>4</sup>"Incidences of two or more human cases of the same disease or infection in which the cases are linked or are probably linked to the same food source." European Food Safety Authority and European Centre for Disease Prevention and Control, "The European Union Summary Report on Trends and Sources of Zoonoses, Zoonotic Agents and Food-borne Outbreaks in 2010," *European Food Safety Authority Journal* 10, no. 3 (11 2012): 2597.

<sup>5</sup> We excluded the figure for Latvia, which was highly anomalous due to a different definition of outbreak used in the country.

<sup>6</sup> Nicolas Canivet, *Food Safety Certification* (Food and Agriculture Organization of the United Nations, 2006), <ftp://ftp.fao.org/docrep/fao/008/ag067e/ag067e00.pdf>.



analysis and critical control points' (HACCP) method, which is the globally recognized standard for identifying and eliminating risks at each stage of production; the second involves requirements for good manufacturing practices, such as the quality of personnel. Only two schemes in the EU make use of this approach: the British Retail Consortium (BRC) and the International Featured Standard (IFS). Only the BRC lists publicly the companies which successfully meet its auditing requirements. This information is constantly kept up to date on the BRC's website.<sup>7</sup> We analyze this relative to the size of the food industry in each country in terms of the number of people employed. This is available from FoodDrinkEurope.<sup>8</sup> We then ranked countries on a scale from 0 to 1, with the highest scores going to countries with the most certifications per number of people employed in the food industry.

A disadvantage of measuring performance in terms of BRC certifications is that the currency of schemes varies among countries. The BRC is far more widely used than the IFS, with offices in 23 countries compared to 10.<sup>9</sup> However the IFS scheme is especially commonplace in France and Germany (and possibly some other countries) and the BRC certification, though still widely used, is less current there. Ideally to compensate for variances among countries in the currency of certification schemes, we would want to triangulate by using data from all comparable schemes. However the lack of publicly available data made this impossible. As a result, France and Germany particularly underperform in our ranking. We compensate for this by looking at a second indicator on measures taken: RASFF notifications.

### **RASFF Notifications**

The indicator on RASFF notifications is another indicator of measures taken. The RASFF registers notifications from Member States when they take action to mitigate a food safety risk.<sup>10</sup> A number of other things are also cause for a notification to the RASFF, for example outbreaks traced to a particular product; we included only data on measures taken. More notifications from a country means more measures taken and therefore better performance. We therefore ranked countries on a scale from 0 to 1, with the highest scores going to the countries reporting the highest numbers of measures taken.

### **Food Imports**

This indicator measures performance in terms of vulnerability to food which may be less safe as a result of it originating in countries which may have less stringent food safety standards than the EU. For food imported from outside the EU, we took figures from Eurostat, given in the value of extra-EU-27 trade in

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<sup>7</sup> British Retail Consortium, "BRC Directory," *British Retail Consortium*, 2012, <http://www.brcdirectory.com>. Data collected September 2012. The directory is constantly updated; figures may therefore have changed.

<sup>8</sup> Food Drink Europe, *Data & Trends of the European Food and Drink Industry*, 04 2012, [http://www.fooddrinkeurope.eu/uploads/publications\\_documents/Final\\_DT\\_2012\\_04.06.pdf](http://www.fooddrinkeurope.eu/uploads/publications_documents/Final_DT_2012_04.06.pdf).

<sup>9</sup> Canivet, *Food Safety Certification*.

<sup>10</sup> Rapid Alert System for Food and Feed, *2011 Annual Report* (Luxembourg: European Commission, 2012), [http://ec.europa.eu/food/food/rapidalert/docs/rasff\\_annual\\_report\\_2011\\_en.pdf](http://ec.europa.eu/food/food/rapidalert/docs/rasff_annual_report_2011_en.pdf).



millions of euros.<sup>11</sup> We scored this relative to the population of each country to give a number of euros per capita spent on food from countries outside the EU. A higher spend on extra-EU food indicates increased vulnerability and therefore lower performance. To reflect this inverse relationship, we used an inverted ranking scale from 0 to 1, such that the countries with the lowest expenditure on extra-EU food scored highest.

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<sup>11</sup> Gilberto Gambini, *EU-27 Consistent World Leader in Trade of Food and Drink*, Statistics in Focus (Luxembourg: Eurostat, 2009), [http://epp.eurostat.ec.europa.eu/cache/ITY\\_OFFPUB/KS-SF-09-078/EN/KS-SF-09-078-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-SF-09-078/EN/KS-SF-09-078-EN.PDF).

## Summary of Indicators

<u>Category</u>	<u>Indicator</u>	<u>Definition</u>	<u>Source</u>	<u>Year</u>
<b>From Farm to Fork and Further: Composite Index</b>	Sum aggregate of normalized values for outbreaks, BRC certifications, RASFF notifications, and extra-EU food imports.			
<b>Outcomes</b>	<b>Outbreaks Reporting Rate</b>	Number of outbreaks of food-borne illness per 100,000 population.	European Food Safety Authority <sup>12</sup>	2010
<b>Measures Taken</b>	<b>BRC Certifications</b>	Number of BRC-certified food establishments per 10,000 food-sector employees.	Certifications: British Retail Consortium (BRC) <sup>13</sup>	2012
			Employees: FoodDrinkEurope <sup>14</sup>	2010
	<b>RASFF Notifications</b>	Number of measures taken and reported to the Rapid Alert System for Food and Feed. Excludes notifications relating to risks identified.	Rapid Alert System for Food and Feed <sup>15</sup>	2011
<b>Vulnerability</b>	<b>External Trade in Food and Drink Relative to Population</b>	Value of extra-EU-27 imports per country in euro expenditure per capita.	Trade figures: Eurostat <sup>16</sup>	2008

Table 1: Indicators of the GeoRisQ Monitor 'From Farm to Fork and Further'

<sup>12</sup> European Food Safety Authority and European Centre for Disease Prevention and Control, "The European Union Summary Report on Trends and Sources of Zoonoses, Zoonotic Agents and Food-borne Outbreaks in 2010."

<sup>13</sup> British Retail Consortium, "BRC Directory."

<sup>14</sup> Food Drink Europe, *Data & Trends of the European Food and Drink Industry*.

<sup>15</sup> Rapid Alert System for Food and Feed, *Preliminary Annual Report*.

<sup>16</sup> Gambini, *EU-27 Consistent World Leader in Trade of Food and Drink*.