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# Food Safety in Finland 2017





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## Description

Publisher	Finnish Food Safety Authority Evira
Title	Food safety in Finland 2017
Authors	Finnish Food Safety Authority Evira
Abstract	<p>This report presents for the year 2017 the results of regulatory control related to food safety, official control and monitoring programmes on food and feed, as well as research and risk assessments. The report also assesses, based on those results, the status of food safety and the future needs for regulatory activities in Finland. The report extends the annual report referred to in EU Control Regulation (EC) No. 882/2004 with respect to food safety; the annual report describes the results of control in the various sectors of the food supply chain as a whole.</p> <p>The results of regulatory control and research in 2017 demonstrate a good status of food safety in Finland. Domestically produced food does not contain chemical substances in levels that would be dangerous to the consumer. The foods tested contained food-poisoning causing bacteria in very low concentrations. The number of food-borne epidemics was at the same level as in previous years, but the number of people affected was the lowest in more than ten years. The number of food frauds is increasing and fraudulent activities are also found in Finland. The number of food withdrawals is increasing.</p> <p>As a rule, food sector companies operating in Finland meet food safety requirements excellently or well. Severe shortcomings occur in very low numbers.</p>
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# Kuvailulehti

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Julkaisun nimi	Elintarviketurvallisuus Suomessa 2017
Tekijät	Elintarviketurvallisuusvirasto Evira
Tiivistelmä	<p>Tässä raportissa kerrotaan elintarviketurvallisuuteen liittyvän viranomaisvalvonnan, elintarvikkeiden ja rehujen virallisten valvonta- ja seurantaohjelmien, tutkimusten ja riskinarviointien tuloksista vuodelta 2017, sekä arvioidaan niiden perusteella Suomen elintarviketurvallisuuksustilannetta ja viranomaistoiminnan tulevaisuuden tarpeita. Raportti syventää elintarviketurvallisuuden osalta EU:n valvonta-asetuksen (EY) No 882/2004 edellyttämää vuosiraporttia, jossa kuvataan valvonnan tulokset koko elintarvikeketjun eri sektoreilla.</p> <p>Viranomaisvalvonnan ja -tutkimusten tulokset vuodelta 2017 osoittavat, että elintarviketurvallisuus on Suomessa hyvällä tasolla. Kotimaassa tuotetut tuotteet eivät sisällä kuluttajalle vaarallisia määriä kemiallisia aineita. Ruokamyrkytyksiä aiheuttavia bakteereita esiintyy hyvin vähän tutkituissa elintarvikkeissa. Elintarvikeväälitteisten epidemioiden määrä oli aikaisempien vuosien tasolla, mutta niissä sairastuneiden määrä oli matalin yli kymmeneen vuoteen. Ruokapetosten määrä kasvaa ja myös Suomessa havaitaan petoksellista toimintaa. Elintarvikkeiden takaisinvetojen määrä on kasvussa.</p> <p>Kotimaassa toimivat elintarvikealan yritykset täyttävät elintarviketurvallisuusvaatimukset pääosin oivallisesti tai hyvin. Vakavia puutteita esiintyy hyvin vähän.</p>
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## Beskrivning

Utgivare	Livsmedelssäkerhetsverket Evira
Publikationens titel	Livsmedelssäkerheten i Finland 2017
Författare	Livsmedelssäkerhetsverket Evira
Resumé	<p>I denna rapport berättas om resultaten av myndighetstillsynen som hänför sig till livsmedelssäkerheten, de officiella tillsyns- och uppföljningsprogrammen gällande livsmedel och foder och undersökningar och riskvärderingar år 2017 och utgående från dem utvärderas livsmedelssäkerhetsläget och de framtida behoven inom myndighetsverksamheten i Finland. Rapporten fördjupar den årliga rapport, som EU:s kontrollförordning (EG) nr 882/2004 förutsätter för livsmedelssäkerhetens del. I rapporten beskrivs resultaten av kontrollen i olika sektorer av livsmedelskedjan som helhet.</p> <p>Resultaten av myndighetstillsynen och -undersökningarna år 2017 visar att livsmedelssäkerheten i Finland befinner sig på en hög nivå. Produkterna som producerats i Finland innehåller inte kemiska ämnen i mängder som är skadliga för konsumenten. Bakterier som orsakar matförgiftningar förekommer i mycket små mängder i de undersökta livsmedlen. Mängden livsmedelsburna epidemier låg på de föregående årens nivå, men antalet människor som insjuknat i epidemierna var den minsta på över tio år. Mängden matbedrägerier ökar och också i Finland påträffas ohederlig verksamhet. Antalet återkallelser av livsmedel håller på att öka.</p> <p>Livsmedelsföretagen som verkar i Finland uppfyller till största delen livsmedelssäkerhetskraven utmärkt eller bra. Allvarliga brister förekommer ytterst sällan.</p>
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## Introduction

This report presents for the year 2017 the results of official control related to food safety, official control and monitoring programmes on food and feed, as well as research and risk assessments. The report also assesses, based on those results, the status of food safety and the future needs of regulatory activities in Finland. The report extends the annual report referred to in the EU Control Regulation (EC) No. 882/2004 with respect to food safety; the annual report describes the results of control in the various sectors of the food supply chain as a whole. The results for 2015 and 2016 were published in similar Food Safety in Finland reports. Results for earlier years can also be found on the Evira websites (<https://www.evira.fi/> and [www.zoonosikeskus.fi](http://www.zoonosikeskus.fi)).

Food business operators are responsible for the safety of their products, providing sufficient and correct information regarding them, and compliance in their operations. To ensure this, companies carry out own check control and sampling activities. The results of own check controls are not included in this report.

## Summary

The results of the official control and research conducted by authorities for the year 2017 demonstrate that food safety is at a good level in Finland. Products produced domestically do not contain chemical substances in levels dangerous to consumers. Very small amounts of bacteria causing food poisoning were found in the analysed food products. The number of foodborne outbreaks remained at the same level as in previous years, but the number of people affected was the lowest in over ten years.

In order to maintain the good level of food safety, the situation must be monitored continuously and strict bio safety measures are required both in primary production and the industry. The good situation regarding salmonella in Finland faces challenges from both the increased number of salmonella cases in imported feed and the reduced possibilities of eradicating salmonella from feed due to the prohibition of the use of formaldehyde. The occurrence of salmonella in primary production has also increased, the source of which has often been people or the environment, such as wild birds. Listeria has caused several serious outbreaks both in Finland and abroad, some of which have even resulted in deaths. In Finland, the listeria outbreaks typically affect a small number of people. However, outbreaks seem to occur more frequently than before. Listeria can occur in any food product. In Finland, it has been detected in both imported foods and domestic produce. Meat and fish establishments in particular should invest in the prevention of listeria by ensuring a thorough cleaning of their production facilities and equipment.

The number of food frauds is increasing, and fraudulent actions are detected in Finland as well. Typical items for fraudulent actions in Finland include indications of origin, date markings and contents that do not correspond to that indicated on the package. Organic production is gaining in popularity. The traceability of food and its raw materials is essential both in investigating frauds and in ensuring the authenticity of organic food. The methods available for investigating the origin, composition and authenticity of organic foods in Finland now also include laboratory analytics.

The number of food withdrawals is increasing. The increase is partly due to the higher precision in the statistics. The withdrawals show that both official control and own check control in companies are effective and done in a responsible manner.

2017 was the second full year in which the results of all planned food control activities were published in the Oiva system for the publication of food control results. About 27,000 reports were published in 2017. According to the Oiva results, food business operators complied with the regulatory requirements well (87%

on average, A and B results) in all sectors of the industry. Only 0.7% of the companies had serious shortcomings (D result) in their compliance with requirements that concern food products.

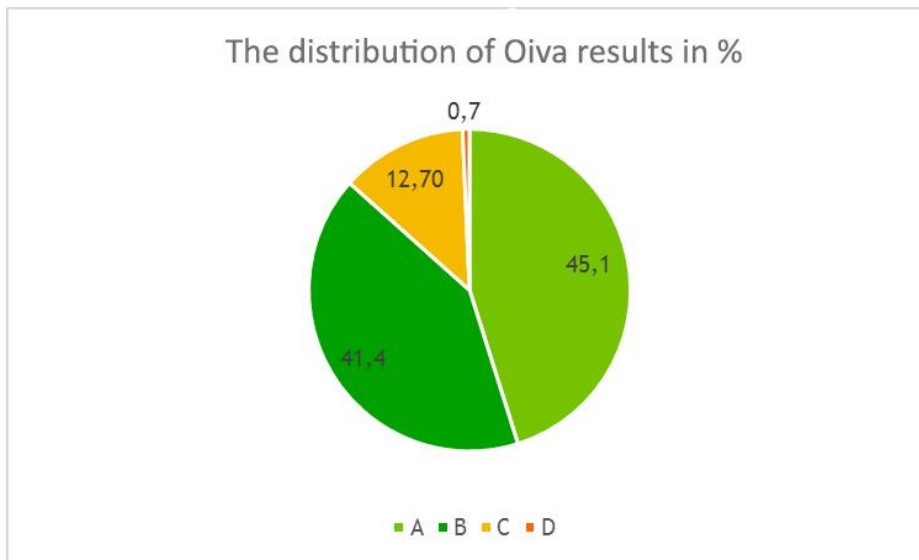


Figure 1. The distribution of Oiva results in 2017

The publishing of control data has further improved the uniformity of the control procedures and the responsibility of the operators. The Oiva system has also increased the efficiency of real-time data collection and the use of control data in planning and developing the operations.

The control activities planned by the food control authorities were mainly achieved. In some cases, the targets were not met, mainly due to the lack of resources. Special situations (such as foodborne outbreaks and withdrawals) that have a direct impact on food safety were handled well.

Future challenges within official activities concern the international nature of the production and sale of raw materials for food products, the networking of and chains built by the operators in the sector, multi-channel sales and marketing, new forms of production, technological advances, the differentiating and diversifying consumer needs, the effects of urbanisation on the consumption and production of food products, the effects of the ageing of the population, risk tolerance, circular economy and climate change. The control of food frauds and distance selling pose new kinds of challenges for official control. In the case of retail and restaurant chains, the control systems must be further developed to take into account the division of the responsibility for compliance of the operation among several operators in the chain. Logistics nodes, such as warehouses, must also be considered more efficiently. The improvement of the risk-based approach and harmonisation of local control activities, as well as the overall efficiency and digitalisation of official activities, remain among the goals for the near future.

For the competitiveness of Finland, the promotion of food product exports is an important focus area in official activities. The role of authorities in promoting exports continues increasing as the requirements that the target countries set to exporting countries, export companies and exported products grow stricter. The value of the Finnish food exports increased to about 1.7 billion euros.

## 1. Official control system for food safety

The human resources for official control in food safety related tasks in 2013–2017 are presented in Table 1.

**Table 1.** Food control personnel in full-time equivalents (FTE)

Authority	2017	2016	2015	2014	2013
Evira	338**	324**	321*	314*	313
The Centres for Economic Development, Transport and the Environment**	25.4	24.3	3.6	2.8	
Regional State Administrative Agencies	23.8	25.5***	13.2	17.0	15.3
Municipalities	257	230.4	263.5	276.4	296.0
Customs	30***	80.0	82.0	84.0	84.0
Valvira	1.6	1.1	1.2	1.2	0.8
The Finnish Defence Forces	2.6	2.2	2.3	2.2	2.7
Åland (estimate)	5.4	5.4	5.4	5.4	5.4
Others, incl. authorised inspectors	14.3*	14.3*	18.9*	18.9*	8.2
<b>Total</b>	<b>698</b>	<b>707</b>	<b>711</b>	<b>723</b>	<b>725</b>

\* Feed control included in the resources in 2014

\*\* Organic control is also included from 2016 onwards

\*\*\* basis of calculation has changed

In total, 698 full-time equivalents (FTE) were invested in food, feed and organic control. The number of municipal control units was 62. The figures exclude both the reindeer meat controls conducted by municipal veterinarians under the Regional State Administrative Agency for Lapland and the work hours of the fee-based official veterinarians working for Evira. The figures also exclude the work invested in testing official samples in local laboratories. The figure representing hygiene testers' work time is a rough estimate.

In order to enhance the prevention of food frauds, food control authorities, fiscal police forces, prosecutors, tax officials and financial investigators of Customs work in closer collaboration than before. In addition, the Grey Economy Information Unit of the Finnish tax authority coordinates the collaboration of 20 officials to combat the grey economy and financial crime. As a result of this collaboration, a website was published that gives citizens and political decision-makers up-to-date information of the grey economy and financial crime in Finland.

In the beginning of 2019, the Finnish Food Authority will take up the tasks of a central authority for food safety control and the tasks that Evira currently performs. As a result of the regional government reform, provinces will take up the food control tasks currently performed by municipalities in 2020. The food control tasks that are currently the Regional State Administrative Agencies' responsibility will be divided between the Food Authority and provinces.

## 2. General information regarding food safety

### 2.1 Companies in the food sector

Figure 2 describes the number of companies in the food product and food contact material sectors in 2017.

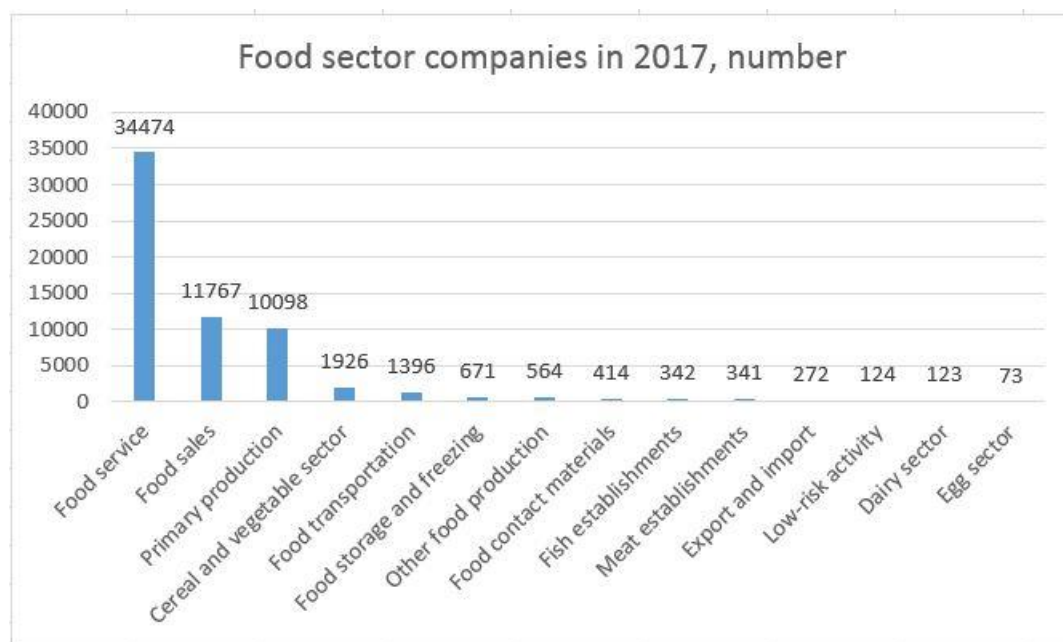


Figure 2. The number of food product and food contact material companies in the official systems in 2017

### 2.2 The Oiva results of food control

Planned food control is implemented by using the Oiva system that also informs consumers of the food control results of companies in the form of the Oiva report. The results of retail shops and serving establishments have been published since 2013 and those of the food industry since the beginning of 2016.

Table 2. The Oiva control visits in 2017

Activity category	Number (primary)	Inspections	Sites inspected, number	Coverage of inspections, %	Sites inspected according to Oiva, %	Oiva A, %	Oiva B, %	Oiva C, %	Oiva D, %
Primary production	10098	757	783	8%					
Food contact materials	414	69	57	14%					
Food transportation	1396	199	184	13%	32%	78.0	18.6	2.3	1.1
Food sales	11767	5033	4080	35%	62%	45.4	39.7	13.7	1.2
Food service	34474	17042	14354	42%	81%	45.0	41.9	12.5	0.6
Food storage and freezing	671	289	206	31%	45%	56.8	32.7	10.0	0.5
Other food production	564	263	221	39%	50%	51.5	36.2	12.2	
Fish establishments	342	808	257	75%	80%	38.9	46.7	12.6	1.8
Meat establishments	341	914	250	73%	85%	35.8	48.4	14.5	1.3
Dairy establishments	123	250	96	78%	86%	60.4	34.8	4.8	
Egg establishments	73	68	46	63%	77%	67.2	24.6	8.2	
Export and import	272	59	47	17%	16%	29.7	35.1	32.4	2.7
Cereal and vegetable sector	1926	892	714	37%	58%	43.1	42.0	14.0	0.9
Low-risk activity	124	24	21	17%	30%	27.3	63.6	9.1	
<b>TOTAL</b>	<b>62585</b>	<b>26666</b>	<b>21316</b>	<b>34%</b>	<b>63%</b>	<b>45.1</b>	<b>41.4</b>	<b>12.7</b>	<b>0.7</b>

Taking into account follow-up inspections, about 27,000 Oiva controls were conducted in food business operators, 83% of which were in serving establishments and in retail sales.

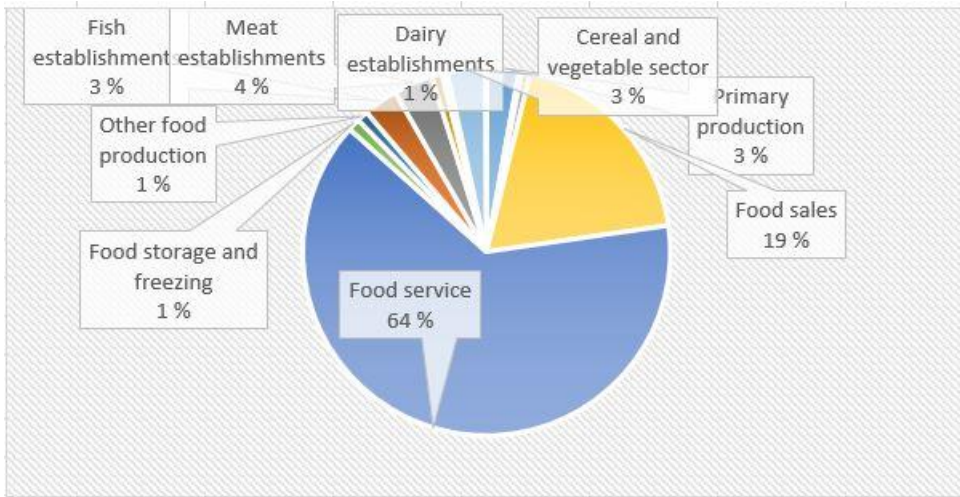


Figure 3. Percentage of controls per type of company

As of the end of 2017, 62% of retail shops, 81% of serving establishments and 87% of establishments have been inspected according to the Oiva system. 85% of retail shops and 87% of serving establishments were rated excellent or good. Some of the sites were not inspected because their business was temporarily suspended. 83% of establishments were rated excellent or good.

### 2.3. Hygiene proficiency

The proficiency certificate to verify hygiene proficiency is required of all personnel who work in the food premises and handle unpacked, perishable foodstuffs.

The number of Evira-approved proficiency examiners is over 2,100. In 2017, no new proficiency examiners were approved.

The proficiency examiners organised a total of 11,126 proficiency tests around Finland. As of the end of 2017, a total of 186,496 proficiency tests have been organised. The number includes regular proficiency tests, tests for special circumstances, certifications granted on the basis of an examination and renewals of the proficiency certificates. The annual number of proficiency tests has remained at the same level.

Proficiency examiners granted a total of 61,470 proficiency certificates. As of the end of 2017, the number of proficiency certificates granted is 1,140,870. The number of proficiency certificates granted each year has remained at the same level on average (Table 3).

**Table 3.** Proficiency tests organised and proficiency certificates granted in 2002–2017

Year	Proficiency tests	Proficiency certificates
	number	number
2017	11,126	61,470
2016	11,064	60,862
2015	11,228	63,323
2014	11,965	67,525
2013	11,572	67,768
2012	11,595	66,877
2011	11,906	68,281
2010	11,920	69,552
2009	11,582	66,126
2008	11,629	63,944
2007	11,076	63,791
2006	10,868	67,288
2005	12,602	79,080
2004	14,694	108,777
2003	13,823	114,428
2002	4,846	51,049
<b>Total</b>	<b>183,496</b>	<b>1,140,141</b>

The approval of four proficiency examiners was cancelled due to significant inadequacies and errors in their operation.

The audits carried out in 2009–2017 demonstrated at least minor remarks in nearly every proficiency examiner's actions, and an average of 18% of audits every year have resulted in the cancellation of a proficiency examiner's rights (Table 4).

**Table 4.** Audits to proficiency examiners conducted by Evira and audit results in 2009–2017

Year	Examiners audited	Note	Cancellation of examiner's rights	Requests for police investigation
	persons	number	number	number
2017	6	2	4	0
2016	6	4	2	0
2015	1	0	1	0
2014	2	1	0	0
2013	18	16	2	0
2012	40	34	6	0
2011	51	42	9	4
2010	35	32	3	1
2009	14	10	4	0
<b>Total</b>	<b>173</b>	<b>141</b>	<b>31</b>	<b>5</b>

Table 5 summarises the results of the Oiva inspections regarding the verification of hygiene proficiency. The results show that 92.5% of inspected food premises received the Oiva rating of A that indicates that the food business operator had ensured that each employee that handled unpacked, perishable foodstuffs had a proficiency certificate that follows the model set out by Evira. In addition, the operator has kept records, as

stipulated by the food legislation, to ensure that its employees' hygiene proficiency is up to date as a part of their own check control. A total of 6.4% of all food premises had minor shortcomings in keeping their records, which lead to a B rating. A small number of operators (1.1%) was rated C, which indicates that the operator had not ensured that the employees had proficiency certificates and that records were not kept. None of the inspections resulted in a D rating.

The Oiva results have slightly improved in comparison to 2016. The number of coercive measures taken has fallen by 50% when compared to the results obtained in 2016.

**Table 5.** The results of the Oiva inspections regarding the verification of hygiene proficiency

The Oiva results in 2017									
4.6 Verification of hygiene proficiency									
Food premises	Inspected	Inspections	Results				Guidance and instruction	Notice	Coercive measures
			A	B	C	D			
	number	number	number (%)	number (%)	number (%)	number (%)	number	number	number
<b>Establishments</b>	283	321	284 (88.5)	34 (10.6)	3 (0.9)	0 (0.0)	34	5	0
<b>Reported food premises</b>	9,164	9,610	8,900 (92.6)	602 (6.3)	106 (1.1)	2 (0.0)	611	98	3
<b>Total</b>	9,447	9,931	9,184 (92.5)	636 (6.4)	109 (1.1)	2 (0.0)	645	103	3

## 2.4. Quality and accountability systems

One operator-specific application regarding the national Sikava quality system for pork meat with the Quality Assurance label was approved (resulting in the total number of operators increasing to ten, with 12 Quality Assurance approved sites).

## 2.5. Guides for good practices

In 2017, the changes to the Laaturaha (Quality farm) agricultural guidelines for horticultural producers, drafted by the Finnish Horticultural Products Society, were reviewed. The guidelines have been drafted to ensure the safety of horticultural products and good practices in their production.

Seven guides for good practices were evaluated in the food and two in the feed sector (<https://www.evira.fi/yhteiset/omavalvonta/hyvan-kaytannon-ohjeet/eviran-arvioimat-hyvan-kaytannon-ohjeet/>).

## 2.6. RASFF

In 2017, Finland reported 65 cases (in 2016, 57 cases) of non-compliance detected in Finland to the RASFF (Rapid Alert System for Food and Feed) system of the EU. 43 (66%) of the reports concerned food products, 19 (29%) feeds and 3 (5%) contact materials. The reports that Finland filed mostly concerned the poor



microbiological quality of imported food products (20 reports) and violations of regulations regarding plant protectants (11 reports). Out of the batches that were unfit for consumption, 50% were fresh vegetables, particularly those used for seasoning. None of the reports that Finland filed concerned products of Finnish origin; instead, they were all produced elsewhere.

34 (52%) of the reports Finland filed were based on the border controls or market surveillance by Customs. 15 (23%) of the RASFF reports were the result of other official controls. Finland filed five RASFF reports regarding foodstuffs due to non-compliances detected by companies in their own check controls.

Due to the special guarantees concerning salmonella applied in Finland, imported feed batches are tested for salmonella. In these investigations, either the operators' own check controls or sampling by authorities revealed that 15 batches contained salmonella. These findings were reported in the RASFF system.

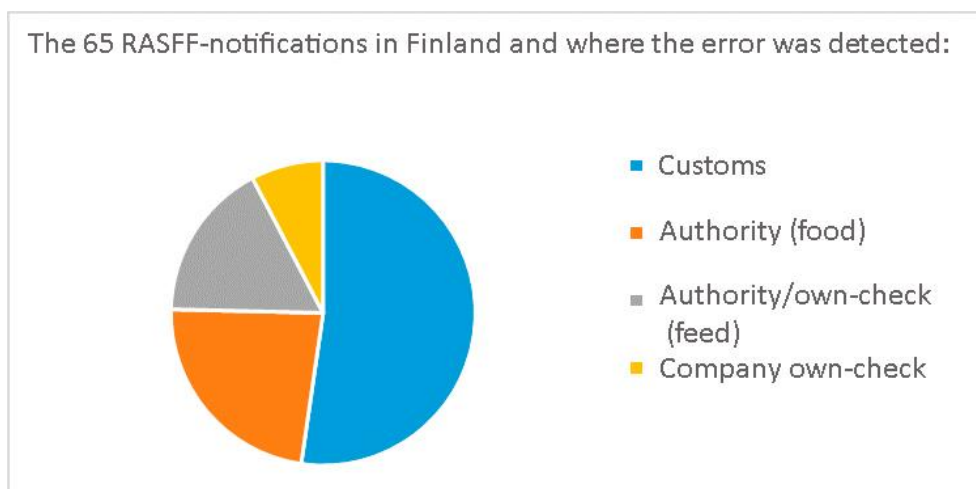


Figure 4. Reports filed by Finland to the RASFF system in 2017

In Finland, normal monitoring and, if necessary, recall measures are applied to the food products, feeds and food contact materials reported by or to Finland using the RASFF system. Among other factors, the measures depend on whether the product has been made available to consumers and whether it is likely that households still have the product in their possession. In the cases where salmonella is found in feed, the feed is subjected to a chemical or thermal treatment to rid it of salmonella before use.

The RASFF reports received by Finland most frequently concerned small batches of special products that had been ordered directly from the countries of production by small operators. Out of the 73 reports received, i.e. reports that concern non-compliant batches of food imported to Finland, only a few concerned products of companies that operate at the national level.

## 2.7. Administrative Assistance and Cooperation System (AAC) between EU Member States

In 2017, Finland submitted nine requests in the EU system for administrative assistance AAC-AA. They concerned unlawful marketing of dietary supplements using medicinal claims. Finland received five reports via the AAC-AA system, three of which were information on the inspection of the authenticity of fresh tuna delivered by the Commission. One concerned the prohibited medicinal claims used in the marketing of dietary supplements and one was about the erroneous use of an additive.



Finland did not file any requests for help in the AAC-FF system for fighting food frauds, and received eight notifications from the system. The notifications that Finland received concerned falsified fresh tuna, a stolen batch of foodstuffs, errors in the labelling of a food product, unlawful use of an additive, the marketing of dietary supplements using medicinal claims and falsified food brands.

## 2.8. Food frauds

The collaboration between authorities to fight food frauds and other criminal activity in the food production chain was further enhanced. Training regarding fighting food frauds was organised at police stations all over Finland, in the prosecutor academy, at the Police University College and for tax authorities. The training increased the awareness and understanding of the criminal activities affecting the food production chain. Thanks to the closer collaboration between authorities, food control authorities were informed of a higher number of suspected crimes in the food production chain compared to the previous year. In these cases, the collaboration enhanced the efficiency of the investigation and preliminary enquiries. Preliminary enquiries regarding serious frauds, falsifications and marketing crimes are in progress in different parts of the country. Preliminary enquiries were also started in cases with international dimensions, and the collaboration with other Member States was closer than before.

The requirements of verifying the reliability of food sector companies before allowing the company to operate in the sector were discussed with the Grey Economy Information Unit of the Finnish tax authority. Eliminating the competitive edge obtained by neglecting the tax and other obligations under public law would enhance the economic operating conditions of those abiding by the rules.

A website that gives an overview of the situation was published in order to fight the grey economy and financial crime. The collaboration to obtain an overview of the situation between a total of 21 authorities is one of its kind in both Europe and the world. <https://www.vero.fi/en/grey-economy-crime/>

## 2.9. Withdrawals

The increase in the number of withdrawals continued for the second year in a row. Cases that were considered withdrawals totalled 158, which is 21% more than the year before. The statistics from different years are not completely comparable due to slight differences in recording. However, the statistics give valuable insights into long-term trends (Figure 5).

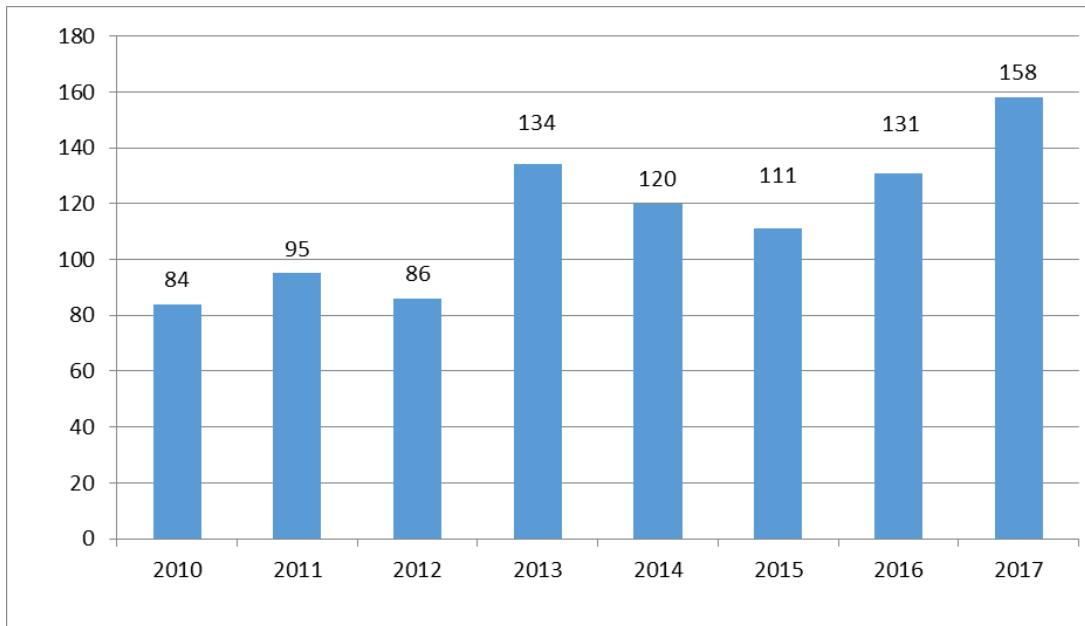


Figure 5. Food withdrawals in 2010-2017

Since 2016, the statistics also include all the cases reported in the international RASFF system that concern non-compliant products that were no longer available in the Finnish market when the information reached Finland. The statistics include cases where the product has reached the distribution chain but is not yet available to consumers. A change in the manner in which the statistics are compiled caused a change in the otherwise decreasing trend. The change was necessary, however, since it helps demonstrate the frequency of product batches that require a recall reaching the market.

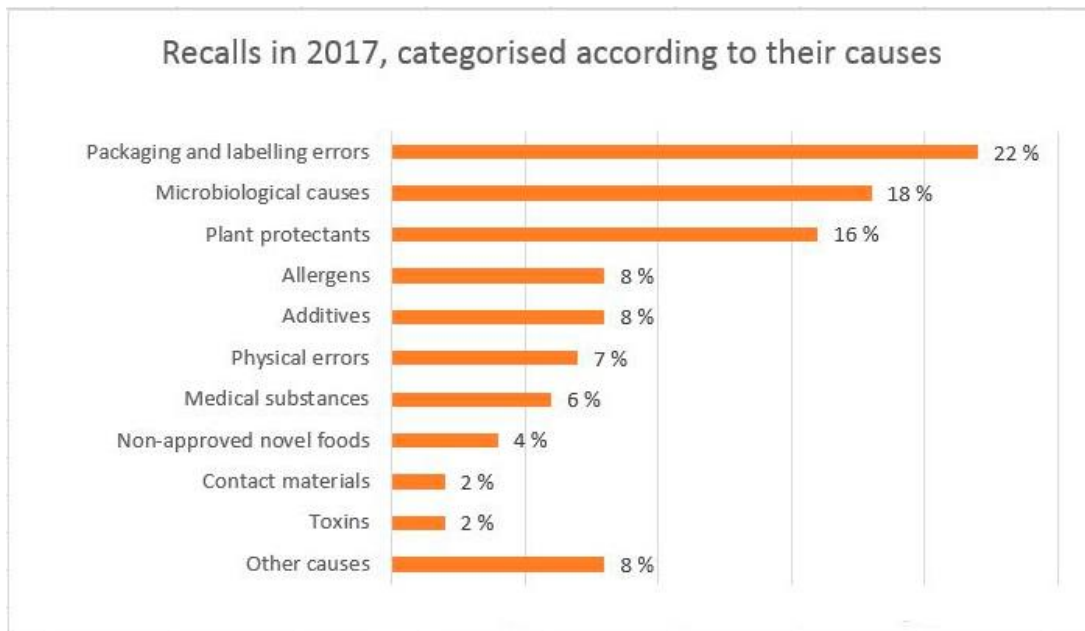


Figure 6. Causes of withdrawals in 2017

Withdrawals have been categorised according to the causes of withdrawals (Figure 6). In the four-year period under review, the most common causes have remained unchanged. However, the order of frequency among them has varied.

The most frequent cause for recall in the year under review was labelling, which resulted in as many as 34 withdrawals (22% of all withdrawals). 20 of the cases concern mistakes in which either the package or the label attached to the package was intended for another product.

Various microbiological issues (salmonella, listeria and other bacteria and moulds) were the second most common cause for withdrawals (18% of all withdrawals). Though none of the withdrawals concerned Finnish meat, salmonella was detected in four imported meat batches and three batches of fresh vegetables, among other things. Listeria was the cause of nine withdrawals that concerned meat, fish, processed meat and chocolate bars. Three withdrawals during the year under review concerned products that contained STEC (Shiga toxin-producing *E. coli*). Other withdrawals were not caused by significant health risks but by inflated packages, for instance, which is also easy for consumers to detect, meaning they can avoid using the product.

The number of withdrawals caused by plant protectant residues increased by nine from the previous year, now totalling 25 (16% of all withdrawals). The majority of the products were fresh vegetables and fruit produced in Asia. In many of the cases, the maximum allowed limits were only exceeded slightly, and the products did not pose any acute risks to consumers. However, these batches were recalled in order to minimise cumulative adverse health effects.

Prohibited colouring agents caused a total of eight withdrawals. Substances that dissolve into food from dishes or utensils only resulted in three withdrawals, whereas the number was ten in the previous year. In 11 withdrawals, the cause was material that had come off of packaging machines or a similar foreign object in a food product.

In several years, errors that concern allergens have been the most common cause for withdrawals, but this time only 13 cases were detected during the whole year. In most cases, the errors were caused by the lack of proper care in the manufacturing of the product.

In Central Europe, the use of the antiparasitic agent fipronil in chicken farms that produce eggs resulted in levels of fipronil in eggs that were assessed to be harmful, causing large-scale withdrawals. However, this issue hardly concerned Finland. There were four withdrawals in connection with this case. The products were in the storage rooms of bakeries or they had only been used in baking tests.

26% of the recalled food products and food contact materials were of Finnish origin, 30% from other EU Member States and the remaining 44% from countries outside of the EU. Many of the errors that resulted in withdrawals in Finland had first been detected outside of Finland. In these cases, the notification is received from the Rapid Alert System for Food and Feed (RASFF) of the EU. The percentage of these cases decreased from 40% in the previous year to about 25% of all withdrawals. In other categories, the numbers increased by about ten cases per category: 23% of the withdrawals were the result of non-compliance detected by Customs, 18% the result of the own check controls of companies, 17% due to notifications from consumers and 10% as a result of municipal food control or due to issues observed by Evira. A clear reason for the increase in the number of cases detected in Finland is not known, but it indicates an efficient, high-quality food control chain and active participation of the operators in recall processes.

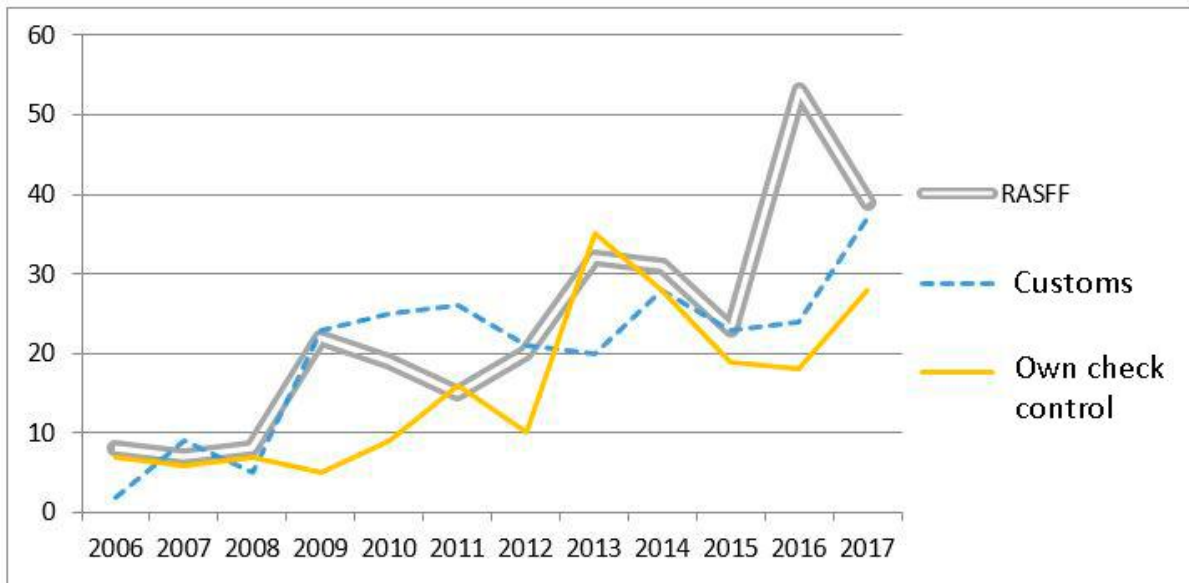


Figure 7. Detecting the need for a recall; the top three most common sources

### 2.10. Foodborne and household water borne outbreaks

In 2017, municipalities reported 60 suspected foodborne or waterborne outbreaks, which is somewhat less than the year before (89 cases in 2016). In addition, municipalities filed seven investigation reports and the National Institute for Health and Welfare filed one investigation report without a previous notification of a suspicion.

Based on the reports, 39 outbreaks were classified as food poisonings. The rest were identified as other than foodborne or household water borne outbreaks (such as transmitted from one person to another or from swimming water) or it only affected one person (Figures 8 and 9).

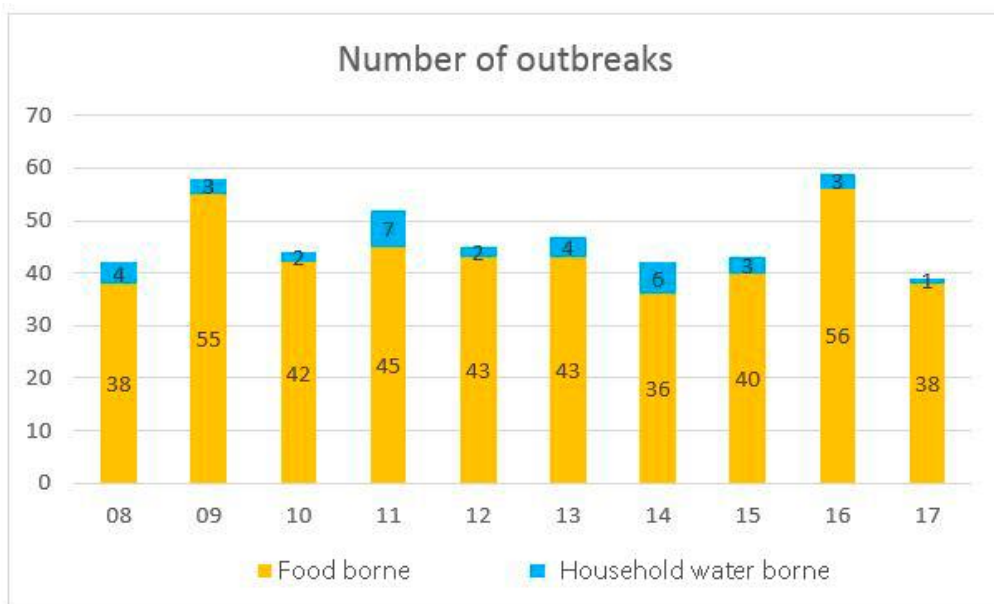


Figure 8. The number of foodborne and household water borne outbreaks in 2008–2017

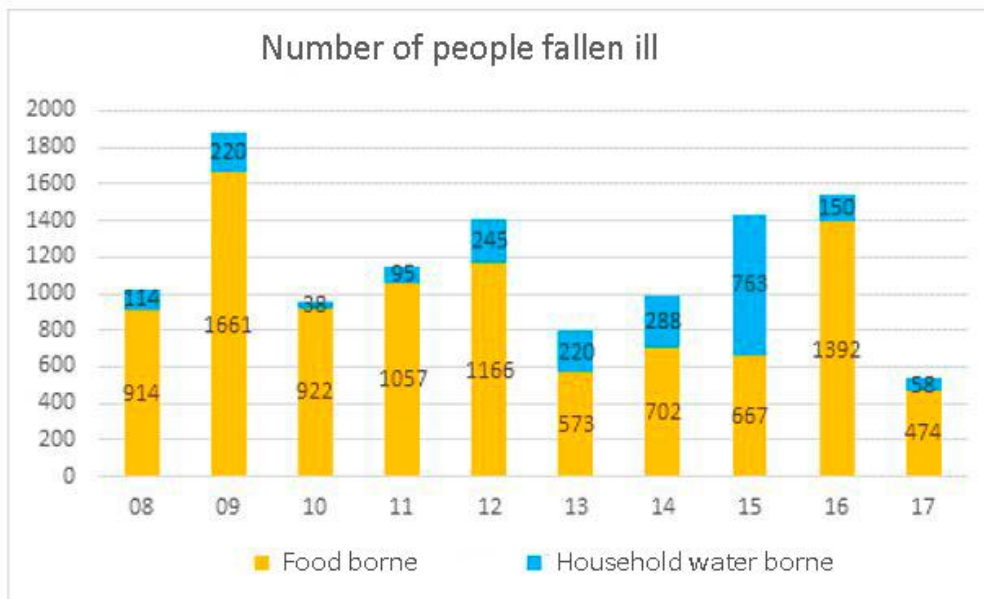
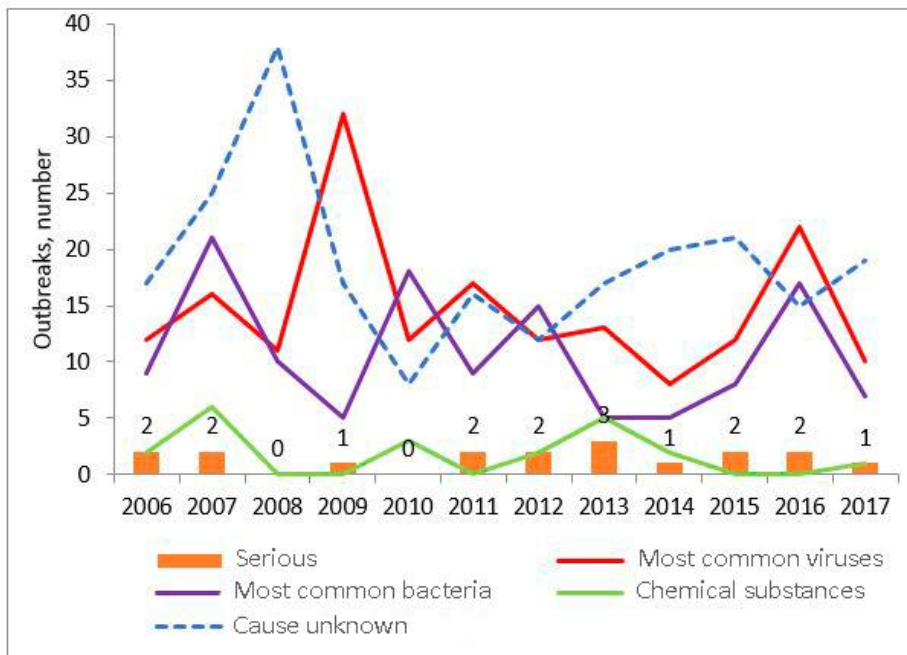


Figure 9. The number of people affected by foodborne and household water borne outbreaks in 2008–2017

While the number of reported foodborne (38 outbreaks, 474 people affected) and household water borne outbreaks (1 outbreak, 58 people affected) remained at the same level as in previous years, the number of people affected was the lowest in over ten years. Among the most common causative agents for food poisonings, norovirus was still the most frequently identified pathogen that caused food poisonings (10 outbreaks). In many of the cases (at least five outbreaks), an infected kitchen worker was identified as a factor that affected norovirus outbreaks. *Salmonella* Bareilly infected more than 20 people. The suspected source of the infections were spices. *Campylobacter* caused three foodborne outbreaks, transmitted by insufficiently heated broiler or duck meat. *Clostridium perfringens* caused three small-scale outbreaks. Among the pathogens that cause more severe food poisonings, the enterohemorrhagic *Escherichia coli* (EHEC) caused a small-scale outbreak (three people affected) in a home, transmitted via home-made meat patties that were not heated properly. As for food poisonings caused by chemical substances, one unusual outbreak was caused by a harmfully high concentration of sodium nitrite that had accidentally ended in bologna-type sausage (lauantaimakkara) during its production process. In the case of 19 outbreaks, the cause of the outbreak could not be identified (Figure 10).



**Figure 10.** Foodborne outbreaks categorised according to pathogens and severity in 2008–2017. In a severe outbreak, listeria, EHEC or hepatitis was diagnosed in those affected.

The National Institute for Health and Welfare (THL) used typification based on whole genome sequencing (WGS) to detect four listeriosis clusters that affected dozens of people in total. THL investigated the clusters in collaboration with local authorities, Evira and the European Centre for Disease Prevention and Control (ECDC). While similar listeria strains to these cases were found in frozen corn and cold-smoked and raw-pickled fish, the epidemiological connection to the cases remained unclear. Other cases were discovered in 2018, and the investigations continue.

In 2017, THL received various notifications of cryptosporidium infections, the source of which was suspected to be contact with live calves. The number of infections reported in the register of infectious diseases increased in the hospital districts in Ostrobothnia in particular. A representative of a municipality contacted Evira in a case where it was suspected that flies had spread the infection in a summer festival.

### 3. Import of food and contact materials

#### 3.1 Veterinary border control

775 (in 2016, 651) batches of food products of animal origin that were imported to Finland directly from a non-EU country were subjected to veterinary border control. Three batches (0.4%) (in 2016, five batches or 0.8%) received a written notice and none (in 2016, five batches) were rejected. All notices concerned shortcomings in labelling.

#### 3.2 Import of products of animal origin from other EU Member States

In 2017, there were around 650 operators that imported products of animal origin from other EU Member States (intra-community trade) via places of first arrival. A total of 190 planned inspections, 16 follow-up inspections and nine inspections based on irregularities detected in other control activities were conducted.

Inspections that were part of the controls in places of first arrival were targeted according to risks, taking the type of imported food products, volumes, the effectiveness of own check control and the history of official control into account. Inspections were also targeted to pork and wild boar meat and products derived from them imported from regions where African swine fever is found. The majority of inspections applied to the operations of places of first arrival that imported products subject to special guarantees concerning salmonella (1688/2005/EC). Where possible, official samples to be examined for salmonella were always taken in connection with the inspections. A total of 38 samples were taken in connection with the inspections; four of the samples were positive for salmonella. Salmonella was found in three batches of Polish chicken (the meat in all batches was from the same establishment; *Salmonella Infantis*) and in one batch of Spanish pork jowl (*Salmonella Bredeney*).

The most common irregularities at the places of first arrival concerned the updating of reports and own check control plans, as well as negligence in own check control sampling.

### 3.3 Import of products of non-animal origin

Customs controls the import of products of non-animal origin to Finland. In 2017, Customs inspected a total of 2,736 batches of imported food. About 36%, i.e. 985, of the batches were imported directly to Finland from non-EU countries. In about one in four of the samples of intra-EU imports (1,751), the origin of the products was a non-EU country. However, the products had been imported into Finland via another EU Member State. In the case of around a hundred products, the country of origin could not be determined. Food products, mostly fresh vegetables and fruit, imported from Spain were most frequently inspected; a total of 272 batches. Outside of the EU, the most common country for importing food products from was Thailand; 207 batches of food, mostly tinned food and fresh products, were controlled.

According to product groups, the most frequently inspected products were fresh fruit and fruit products (617 batches) as well as fresh vegetables and vegetable products (556 batches).

Table 6. Food products inspected by Customs in 2017

Samples (no)	Product group	OK	Notices	Non-Compliant
149	Grains and grain preparations	123	16	10
187	Cereal dough based products	158	18	11
556	Vegetables and vegetable products	458	65	33
45	Legume seeds and legume products	34	1	10
617	Fruit and fruit products	577	29	11
115	Nuts and nut products	97	13	5
102	Oleiferous seeds and fruit	95	5	2
18	Starchy vegetables and tubers	18		
174	Herbs, spices and the like	133	22	19
85	Fruit, vegetable and plant juices, beverages, spreads, etc.	71	9	5
18	Fish and fish products	18		
17	Products imitating meat and dairy products	15	1	1
64	Waters, water-based soft drinks, etc.	47	13	4
133	Raw materials for hot beverages and infusions	106	15	12
21	Alcoholic beverages	15	4	2
65	Sweets and chocolate	41	20	4
46	Food products for adolescents	41	2	3
80	Special diet foods (incl. dietary supplements)	30	14	36
100	Compound foods	69	22	9
111	Seasoning products and cooking sauces	82	16	13
33	Cleaned, isolated ingredients	22	10	1
2736		2250	295	191

Out of the product batches inspected in food controls, 191, i.e. 7% of the batches, were found to be non-compliant. Slight negligence (cause for a notice) was detected in 295, i.e. 11% of the batches. The percentage of non-compliant batches was 13% in food products imported from non-EU countries and 4% in food products imported from EU Member States. Most commonly, non-compliant batches had been imported from Thailand. The following most common countries of origin for non-compliant products were the United States and Turkey.

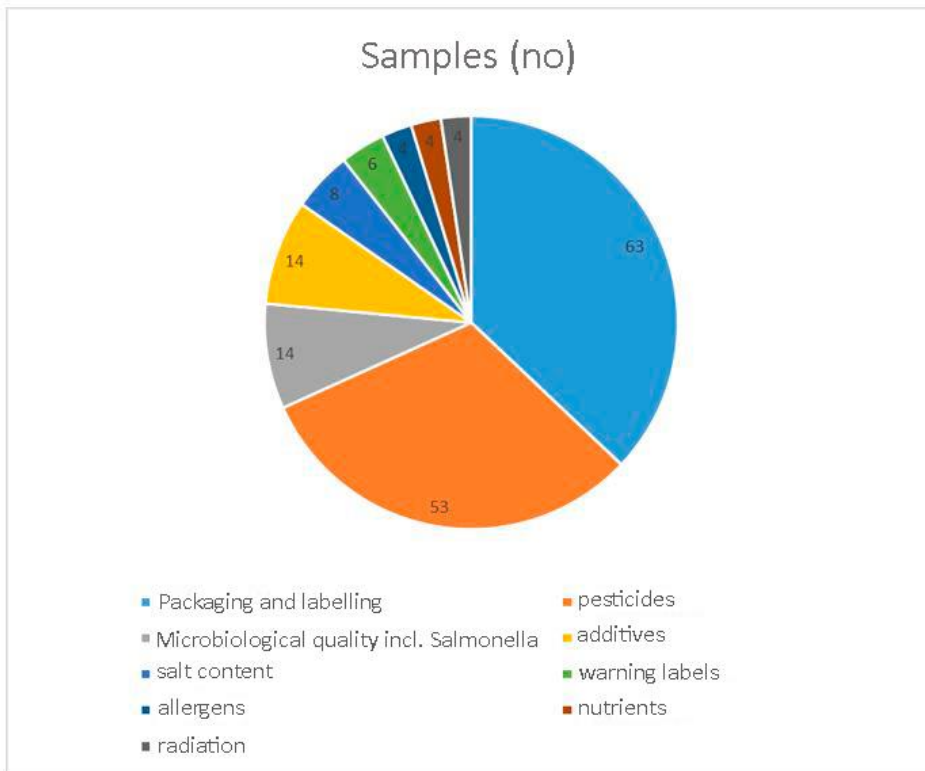
### Causes for non-compliance in food products

The highest number of non-compliant batches was found in the group of food products intended for groups with special needs (including dietary supplements), where serious errors were detected in nearly one in every two products. A total of 80 samples were inspected. Most commonly, errors concerned so-called general labelling. In addition, two dietary supplements contained substances mentioned in the annexes to lists of pharmaceuticals or medicinal herbs (in which case the product may be a medicinal preparation) or novel food ingredients (one dietary supplement). Cases of irradiation and non-compliance with regulations regarding additives were also detected.

The percentage of non-compliant products in the most frequently inspected product groups was small: 2% of inspected batches of fresh fruit and fruit products were rejected due to pesticide residues, and 6% of fresh vegetables and vegetable products were rejected due to pesticide residues and salmonella, among other things.

The two most common causes for non-compliance were the same as in the previous years: errors in labelling and pesticide residues. This year, the third most common cause for non-compliance was low microbiological quality (including salmonella) (Figure 11).





**Figure 11.** The distribution of the most common errors detected in food products inspected in 2017

Food products that cause health hazards were reported to the European Commission via the RASFF system. Reports were most commonly filed of fresh products that were found to contain pesticide residues in levels that cause health hazards, and food products that contain salmonella.

Last year, Customs inspected a total of 310 organic food products, seven of which did not fulfil the regulations on organic production due to the pesticide residues they contained. A total of 62 operators were subjected to the controls. Out of the inspected samples, 239 were taken from intra-community imports, and 71 samples from products imported from third countries.

### 3.4 Import of food contact materials

A total of 419 batches of articles that come into contact with foods, such as cutlery, dishes and articles for processing or storing food, were controlled. 86% of the batches were imported directly to Finland from non-EU countries. About 50% of the intra-EU imports were manufactured in third countries, resulting in around 95% of controlled products being produced in non-EU countries. The most common country of origin of food contact materials was China.

26 products, i.e. 6% of the inspected products, were deemed non-compliant, and minor errors were detected in 73 products (17%). Apart from drinking glasses manufactured in Italy, all other non-compliant products originated in non-EU countries. Causes for rejection included harmful substances that come off of the materials (such as volatile compounds in silicone products) in 11 products, excessively high levels of heavy metals (6 products: ceramic dishes and painted drinking glasses) and errors in labelling and documentation

(Figure 12). Products that may cause health hazards were reported to the European Commission via the RASFF system. Reports were filed concerning heavy metals that come off of products, for instance.

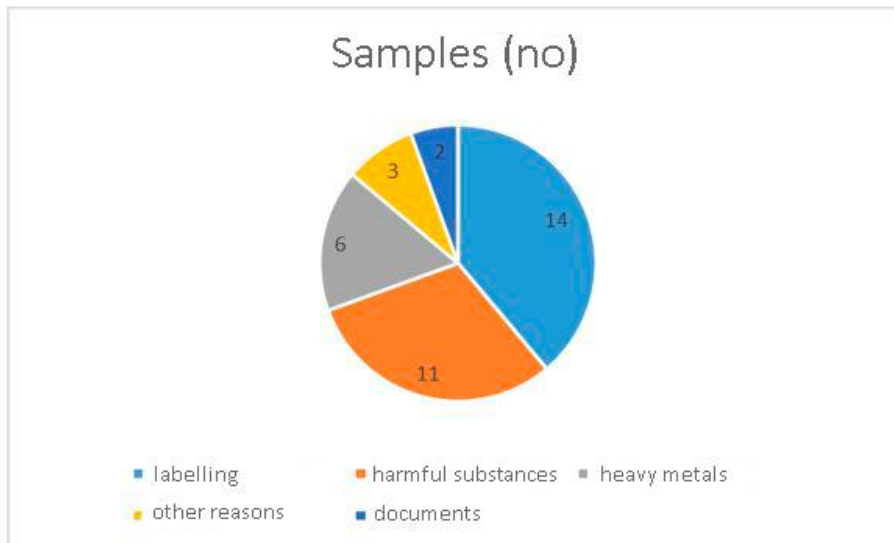


Figure 12. The distribution of errors most commonly detected in food contact materials inspected in 2017

## 4. Export of food products and feed

Export control systems concerning China and the Eurasian Economic Union/Russia were further developed in collaboration with the food industry. In addition, the harmonisation of these systems with the control system in the USA was promoted. A pilot study of an electronic veterinary certification system, eCert, was started within the export of dairy products to China. The electronic eControl system required by the Chinese authorities was implemented, and the reporting of control results and own check control results from pork establishments to China was started. Evira continued the export control activities required by the USA in the export of pork meat, and submitted control results of the residue control programme to the authorities of South Korea and Hong Kong. In exports to Belarus, an advance notification system for veterinary certificates from Evira to the Belarussian authorities was implemented.

Authorities, companies and Business Finland started a collaboration to promote the export of food products and feeds of plant origin.

### 4.1. Market access initiatives

To enable the export of food products, several export questionnaires required by target countries were answered in connection with market access initiatives to six different target countries. The industry prioritised the projects according to sectors (meat, dairy, fish, eggs).

The following export questionnaires were completed in 2017:

- South Korea: chicken eggs, egg products, hatching eggs, chicks
- The Philippines: pork meat, poultry meat
- Japan: BSE/beef

- Singapore: frozen pork meat
- Russia: fishery products, dairy products, poultry meat, ruminants
- China: fish

Export licences granted to Finland in 2017:

- Japan: poultry meat
- Hong Kong: beef and chicken eggs
- South Africa: dairy products, fishery products and PAP (processed animal protein) of pork origin
- Zambia: fishery products, meat products and dairy products
- HKScan was granted a licence to export pork meat to China
- In addition, the export of pork meat to China (by Atria) was started

The following veterinary certificates were agreed upon in 2017:

- The Philippines: boar semen
- South Korea: dairy products
- Thailand: live pigs, processed animal protein of pork origin for feed
- Japan: milk and dairy products
- Bosnia-Herzegovina: beef

#### 4.2. Development of export skills of small and medium-sized enterprises

The objective of the export initiative for SMEs, which started in the autumn of 2016, is to promote the export capacity and competitiveness of food sector SMEs. The initiative offers guidance, training and practical coaching to companies and authorities. In addition, the initiative collects information on the requirements of target countries and produces materials related to export activities. The export initiative for SMEs includes tight collaboration between different authorities and projects in order to offer as comprehensive a guidance as possible. An example of these activities are collaboration networks, such as a network of authorities promoting exports and a network for export control authorities.

## 5. Food production in Finland

### 5.1. Meat inspection

In comparison to previous years, the amount of meat approved in meat inspections has decreased slightly in the case of red meat and increased in the case of poultry meat (264 million kg of red meat and 128 million kg of poultry meat). In addition, 1,057 wild game animals, 373 farmed game animals and 60,995 reindeer were inspected. In addition to reindeer, 26 farmed wild boars, 6 elks, 9 bears and 891 sheep or goats were inspected in reindeer slaughterhouses (Tables 7–9).

The numbers of partly or completely condemned carcasses and rejected live animals vary according to the species (Tables 7–9). There was also variation in the percentage of reasons for condemnations between establishments. The variation in the percentage of condemnations between establishments has been analysed as a part of the plan to standardise meat inspections. Different recording methods are among the reasons that explain the differences. There are no significant year-to-year changes in the numbers of carcasses condemned in meat inspections. The percentages of carcasses condemned in meat inspections were 0.42%

(red meat) and 3.7% (poultry meat). In the case of poultry, the percentage of condemnation has risen approximately by a percentage point (2.8% in 2017 and 0.9% in 2016).

The most common grounds for condemnation for pigs were Pleuropneumonia (in slaughter pigs, 20.4%) and damage caused by ascarid (in slaughter pigs, 7.0%). At less than one per cent, tail biting was a minor issue. The most common reasons for condemnation in the case of bovines were contusions and bruises (2.7%) and pneumonia (2.2%). In the case of poultry, the most common causes for condemnation include changes in body cavity or skin, emaciation and slaughter errors. The changes caused by parasites were the most common reason for condemnation in the case of reindeer. There were no significant changes in the reasons for condemnation in comparison to the previous year.

Finland has the capacity to conduct visual meat inspections as stipulated by the EU regulations, as well as reducing the number of inspections for trichinae in pigs reared in recognised controlled housing conditions. However, these possibilities are rarely utilised since the countries to which products are exported require traditional meat inspections and comprehensive inspections for trichinae. There is currently only one pig holding in Finland that is recognised as having controlled housing conditions. Visual meat inspection in the case of pork meat has not been implemented in a significant scope.

**Table 7.** Meat inspection information concerning domestic animals and reindeer; slaughterhouses, low-capacity slaughterhouses and reindeer slaughterhouses

	Cattle	Slaughter pigs	Sows	Sheep	Goats	Horses	Reindeer	Total
Number of animals brought to slaughterhouse	273,026	1,930,452	35,133	56,749	326	1,263	60,995	2,357,944
Number of animals dead or put down before ante mortem inspection	280	719	121	16	0	1	3	1,140
Number of animals condemned alive	75	65	11	21	0	10	2	184
Number of partly rejected carcasses	22,878	135,866	4,460	128	0	0	10,767	174,099
Number of condemned whole carcasses	1,581	7,160	688	73	1	19	88	9,610
Number of approvals in meat inspections	271,090	1,922,508	34,313	56,639	325	1,233	60,902	2,347,010

**Table 8.** Meat inspection information concerning poultry; poultry slaughterhouses and low-capacity poultry slaughterhouses

	Broilers	Broiler breeders	Turkeys	Chickens	Ducks	Geese	Mallards	Total
Number of animals brought to slaughterhouse	73,591,904	555,285	884,186	3,446	4,399	3,712	9,782	75,052,720
% of animals that died spontaneously	0.148	0.056	0.075	0.087	0.023	0.027	0.133	0.147
% of animals condemned alive	0.061	0.002	0.065	0.000	0.000	0.000	0.000	0.061
% of partly condemned carcasses	3.140	4.155	7.905	0.000	0.409	0.000	0.000	3.203
% of condemned whole carcasses	3.575	21.654	4.267	11.705	1.523	0.162	0.000	3.716

**Table 9.** Meat inspection information concerning farmed game and lagomorphs (rabbits); slaughterhouses, low-capacity slaughterhouses and reindeer slaughterhouses

	Cervids	Ostriches and emus	Lagomorphs	Wild boar	Others
Inspected	19	40	0	313	1
Condemned completely	0	0	0	2	0
Condemned partly	0	0	0	0	1

**Table 10.** Meat inspections of wild game; game handling establishments and reindeer slaughterhouses

	Elk	Other cervids	Bear	Seal	Wild boar	Others
Inspected	371	551	39	0	20	76
Condemned completely	9	10	2	0	0	0
Condemned partly	12	13	0	0	0	0

Traditionally, reindeer are also slaughtered outside of slaughterhouses in the reindeer herding area. The meat obtained from these reindeer is used in the households of the producers (reindeer owners). Some of the meat is sold directly to consumers in the reindeer herding area without meat inspection, or it will be dried and sold directly to consumers in the reindeer herding area. There is no exact information available on the uninspected reindeer meat that is sold directly. Some of the reindeer meat used by the producers originates from the reindeer slaughtered in slaughterhouses that have passed meat inspection. Similarly, a large proportion of the reindeer meat sold directly has been slaughtered in a slaughterhouse and introduced to meat inspection. Based on the information in reindeer records and statistics of slaughtered animals, the Regional State Administrative Agency for Lapland and the Finnish Reindeer Herders' Association estimate that about 70% of the slaughtered reindeer are slaughtered in slaughterhouses and about 30% outside of slaughterhouses. It is estimated that nearly 50% of the uninspected reindeer meat is used by reindeer owners and over 50% of it is sold directly as either fresh or dried meat.

Reindeer are raised and slaughtered in a very small scale outside of the reindeer herding area. There the reindeer are slaughtered in slaughterhouses approved for farmed game, and they are classified as farmed game in meat inspection statistics.

Only a small amount of hunted wild game is taken to approved game handling establishments or slaughterhouses for meat inspection. The majority of the game meat is used uninspected at the hunters' households. A small proportion of wild game is sold directly to consumers or retailed uninspected. Information on the amount of game and game meat that is sold uninspected is not available. According to the Finnish Wildlife Agency, about 56,500 elks, 164 bears and 582 wild boars were hunted in 2017. Meat inspection was conducted on 371 elks (0.6% of those killed), 39 bears (24% of those killed) and 20 wild boars (3.4% of those killed) (Table 10).

## 5.2. Control of slaughterhouses and establishments connected to them

At the end of 2017, Evira was responsible for controlling 14 slaughterhouses (15 in 2016), 47 low-capacity slaughterhouses (45 in 2016) and eight game handling establishments (six in 2016). Five of the slaughterhouses were poultry slaughterhouses.

The number of slaughterhouses decreased by one as one slaughterhouse ceased its operations. Furthermore, the place where one poultry slaughterhouse is based changed. Two new low-capacity slaughterhouses and two new game handling establishments were approved.

Evira organised the control of 50 low-capacity slaughterhouses or game handling establishments, whereas in three cases the controls and meat inspections were carried out by a veterinarian employed by the municipality.

At the end of 2017, there were 36 full-time official veterinarians (41 in 2016) employed by Evira and 46 official auxiliaries (50 in 2016) working in slaughterhouses. Over the course of 2017, 80 part-time official veterinarians and two official auxiliaries worked in low-capacity slaughterhouses and game handling establishments.

A total of 107 inspection-specific notices were given in the slaughterhouse control to 13 slaughterhouses (86 in 2016) and 73 notices to 20 low-capacity slaughterhouses (29 in 2016).

Administrative coercive measures were taken seven times in slaughterhouses (five times in 2016) and two times in low-capacity slaughterhouses. The coercive measures taken in connection with slaughterhouse controls concerned the shortcomings in the maintenance of facilities and equipment, food production hygiene, temperature control and in following the special requirements for food production, among other things.

84% of the slaughterhouses, low-capacity slaughterhouses and approved establishments that are in connection with them were rated excellent or good (A or B, respectively), and 16% were rated as requiring improvement or poor (C or D, respectively) (Table 12).

In the slaughterhouses controlled by Evira and the approved establishments in connection with them, the inspections conducted in 2017 focused on the control of the facilities and production hygiene, as well as the operations and training of the personnel. In slaughterhouses and approved establishments connected to them, the highest number of inspections concerned the production hygiene of food products (260 inspections), the cleanliness of the facilities, surfaces and equipment (255 inspections), as well as the

operations and training of the personnel (216 inspections). Only a small amount of information provided on foods was controlled. Packaging and food contact materials were not controlled at all.

In relative terms, the highest number of shortcomings (rated as requiring improvement or poor) were detected in the maintenance of facilities and equipment (110 inspections, 13% rated C or D), the special requirements for food production (111 inspections, 7% rated C or D) and in the reception of animals and information on animals (197 inspections, 4% rated C or D) (Figure 11).

The Regional State Administrative Agency for Lapland organised the control of 19 reindeer slaughterhouses and seven approved establishments connected to them in 2017. The number of reindeer slaughterhouses has remained unchanged for several years. The Regional State Administrative Agency for Lapland employed 70 part-time official veterinarians in 2017. Some of them only carried out *ante mortem* inspections at reindeer roundup sites. An estimated 3.5 full-time equivalents (FTE) of part-time official veterinarians' work was invested in reindeer meat inspections.

The publication of the control data regarding reindeer slaughterhouses and approved establishments connected to them in the Oiva system started in 2016. In 2017, the inspection-specific rating of excellent or good (A or B) was awarded to 80% and the rating of requires improvement or poor (C or D) to 20% of them. In relative terms, the highest number of shortcomings was found in the maintenance of fixtures, equipment and tools, general hygiene in food production, and in the cleanliness and organisation of facilities and structures. The Regional State Administrative Agency for Lapland did not take coercive measures in 2017 in the control of the reindeer slaughterhouses and approved establishments connected to them that it controls.

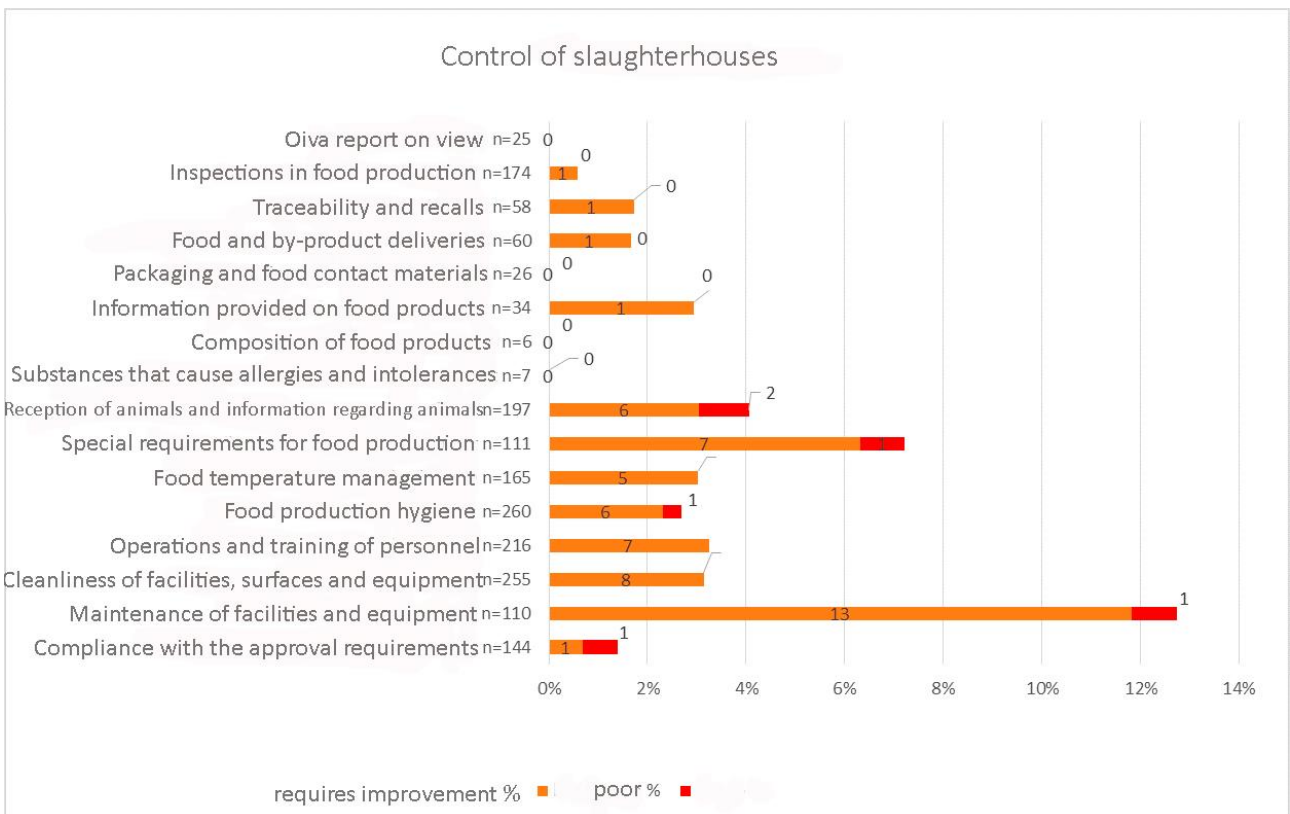
**Table 11.** The number of controls in slaughterhouses, low-capacity slaughterhouses and game handling establishments as well as approved establishments connected to them under the control of Evira, and in reindeer slaughterhouses and approved establishments connected to them under the control of the Regional State Administrative Agency for Lapland in 2017

	Sites			Inspections	
	Total			Planned	Other than planned
	Total	Inspected		number	Total
	number	number	%		number
Slaughterhouses, low-capacity slaughterhouses and game handling establishments, and the approved establishments connected to them	107	55	51	220	6
Reindeer slaughterhouses and the approved establishments connected to them	23*	22		22	1

\* In the results of 2017, reindeer slaughterhouses and the approved establishments connected to them have been recorded as separate control sites, unlike in the case of the establishments connected to other slaughterhouses that are mainly recorded as one control unit with the slaughterhouse in question.

**Table 12.** The control results in slaughterhouses, low-capacity slaughterhouses and game handling establishments as well as approved establishments connected to them under the control of Evira, and in reindeer slaughterhouses and approved establishments connected to them under the control of the Regional State Administrative Agency for Lapland

	Inspections	Results				Sanctions
	Planned inspections, incl. follow-up inspections	Inspection-specific result %				Inspections that led to a notice or the use of coercive measures
	number	A	B	C	D	number
Slaughterhouses, low-capacity slaughterhouses and game handling establishments, and the approved establishments connected to them	218	29.6	54.5	14.6	1.4	86 (76+10)
Reindeer slaughterhouses and the approved establishments connected to them	20	40.0	40.0	15.0	5.0	11 (11+0)



**Figure 13.** Requires improvement (C) and poor (D) ratings (number and %) concerning the requirements imposed on slaughterhouses; n = the number of inspections regarding the requirement in question



### 5.3. Approved food establishments controlled by municipalities

Figure 14 presents the number of approved establishments according to sectors in 2015–2017.

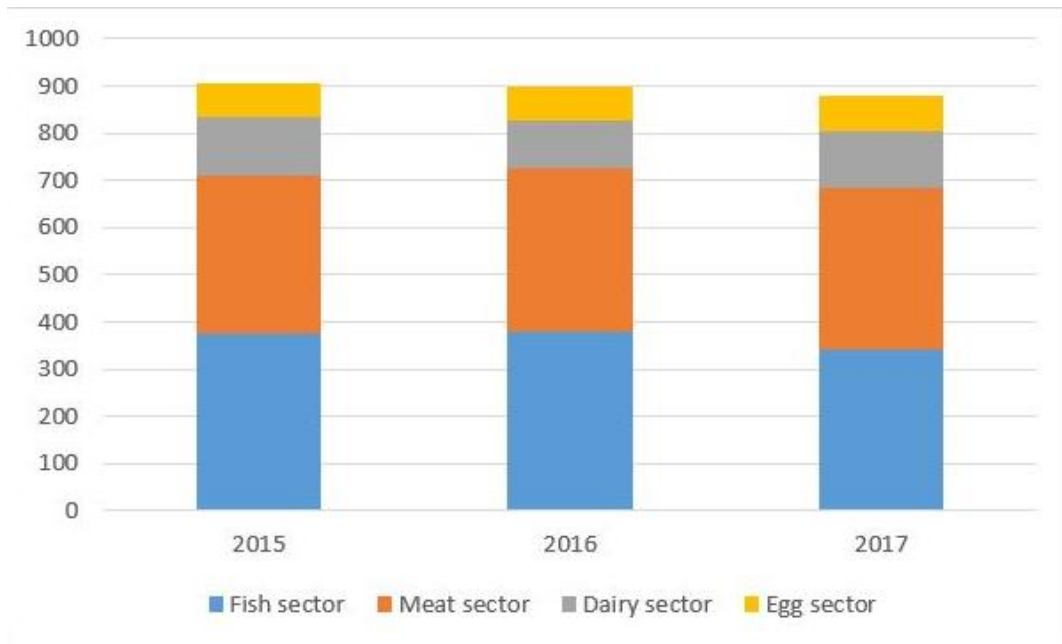


Figure 14. Number of establishments in 2015–2017

There were no significant changes in the number of establishments that produce food products of animal origin (fish, meat, dairy and egg sector establishments) (Table 13).

Table 13. The number of establishments and the inspections

Establishment	Sites			Inspections		
	Primary sites			Approval inspections	Other than planned inspections	total
	total	inspected sites				
	number	number	%			
Fish sector establishment	342	257	75	13	40	810
Meat sector establishment	341	250	73	15	31	914
Dairy sector establishment	116	96	83	11	6	250
Egg sector establishment	72	46	64	1	4	68

One in four fish sector establishments were not inspected in 2017, regardless of the recommended inspection frequency of at least once a year, depending on the size of the establishment. 5% of the inspections were other than planned inspections.

Only about three in four meat sector establishments were inspected. An average of four inspections were conducted in the inspected meat sector establishments in 2017. Three per cent of the inspections were other than planned inspections.

In addition to dairy sector establishments, the number of dairy sector establishments (116) still includes more than 10 operators that are primary production sites in the dairy sector or food premises, not establishments. The number of dairy sector establishments that were not inspected in 2017, about seven per cent, was again slightly lower than in the previous years. A good two per cent of the inspections were other than planned inspections.

One in three egg sector establishments were not inspected in 2017, regardless of the recommended inspection frequency of at least once a year, depending on the size of the establishment. About six per cent of the inspections were other than planned inspections.

**Table 14.** Inspection-specific results of establishments and sanctions

Establishment	Inspections	Results				Sanctions
	Planned inspections, incl. follow-up inspections	Inspection-specific result %				Inspections that led to a notice or the use of coercive measures
	number	A	B	C	D	number
Fish sector establishment	524	38.9	46.7	12.6	1.8	83
Meat sector establishment	883	35.8	48.5	14.5	1.3	198
Dairy sector establishment	244	60.4	34.8	4.8		12
Egg sector establishment	68	67.2	24.6	8.2		6

A total of 1,718 planned inspections were conducted in fish, meat, dairy and egg sector establishments. In these inspections, an average of 83% of the cases were rated excellent or good, and 17% as requiring improvement or poor (C or D, respectively).

The inspection-specific rating of excellent or good (A or B) was awarded to 86% and the rating requiring improvement or poor (C or D) to 14% of the fish sector establishments (Table 14). About 10% of the inspections led to notices requiring improvement or coercive measures.

About 84% of meat sector establishments achieved an excellent or good inspection-specific result and 16% were rated requiring improvement or poor. About 21% of the inspections led to notices requiring improvement or coercive measures.

In the case of dairy sector establishments, 95% of the inspected sites achieved an excellent or good result (A or B) (Table 14). The rating of requires improvement (C) was only given to less than 5% of the dairy sector establishments. None of the inspected dairy sector establishments was rated poor (D). Notices were given to 5% of the inspected sites.

In the case of egg sector establishments, 92% of the inspected sites achieved an excellent or good inspection-specific result (A or B), whereas 8% were rated as requiring improvement (Table 14). None of the inspected

egg sector establishments was rated poor (D). Nine per cent of the inspections lead to notices requiring improvement. Coercive measures were not taken.

**Table 15.** The distribution of the requirement-specific results of planned inspections and follow-up inspections

Establishment	Planned inspections					Follow-up inspections					
	Inspections number	Distribution of results on the requirements imposed on establishments %				Follow-up inspections required* number	Follow-up inspections conducted number	Distribution of results on the requirements imposed on establishments %			
		A	B	C	D			A	B	C	D
Fish sector establishment	503	82.8	13.8	2.9	0.5	81	37	45.9	33.6	14.7	5.8
Meat sector establishment	850	79.3	17.6	2.9	0.2	143	47	50.6	38.7	9.5	1.2
Dairy sector establishment	228	92.2	7.3	0.5	0	11	4	64.0	36.0	0	0
Egg sector establishment	61	94.6	4.5	0.9	0	5	2	100.0	0	0	0

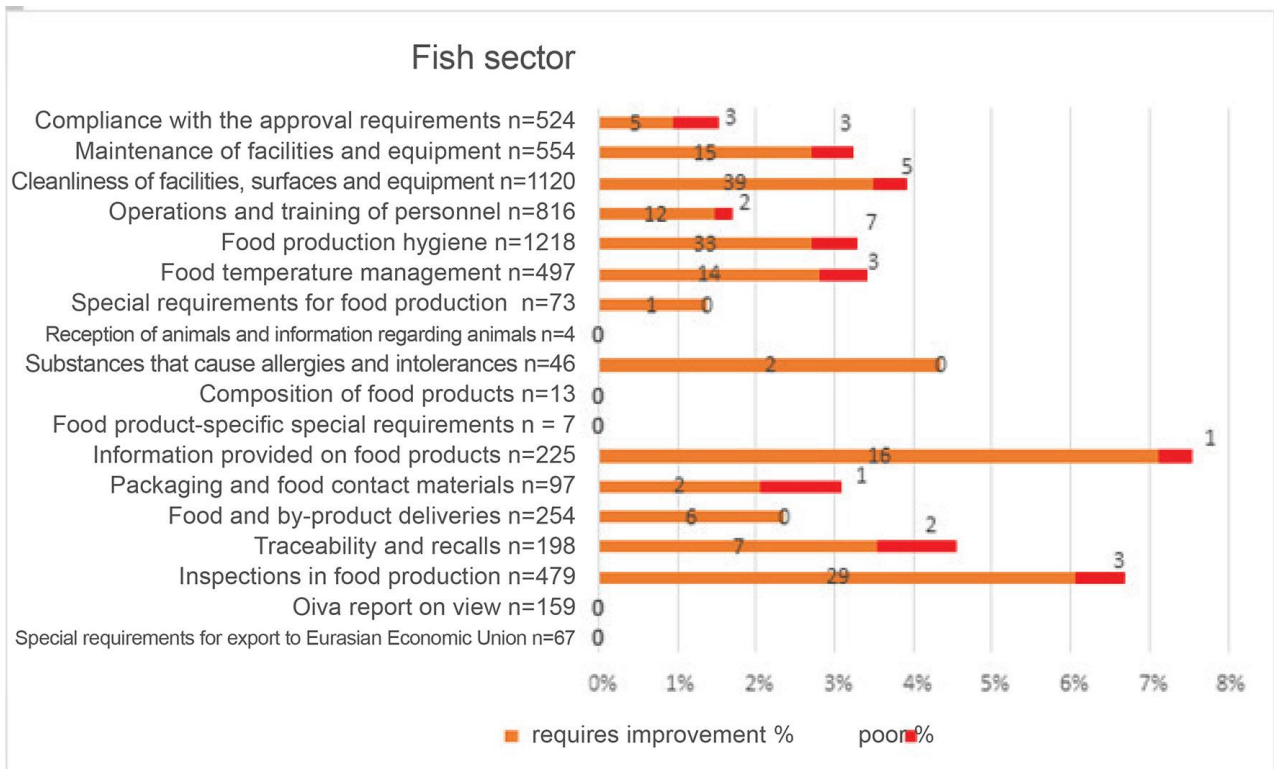
\* One or more results of requires improvement (C) or poor (D) given in the inspection. The figures are shown according to sectors; thus, the number of follow-up inspections required may be lower as one establishment may have received several C or D ratings in various sectors.

503 planned inspections were conducted in fish sector establishments. The number of follow-up inspections was 37. In the follow-up inspections, 80% of the results were excellent (A) or good (B). The percentage of requires improvement (C) or poor (D) results was 20% (Table 15). It is also possible that other shortcomings were detected during the follow-up inspections, which may have led to the results not improving.

850 planned inspections were conducted in meat sector establishments. The number of follow-up inspections was 47. In the follow-up inspections, 89% of the results were excellent (A) or good (B). In about 11% of the cases, the result remained requires improvement or poor.

228 planned inspections were conducted in dairy sector establishments. The number of follow-up inspections was 4. Of the inspected items, 92% were rated A and 7% were rated B; only 0.5% were rated C (Table 15).

61 planned inspections were conducted in egg sector establishments. The number of follow-up inspections was 2. Both of the inspected items were rated excellent (A) in the follow-up inspections (Table 15).

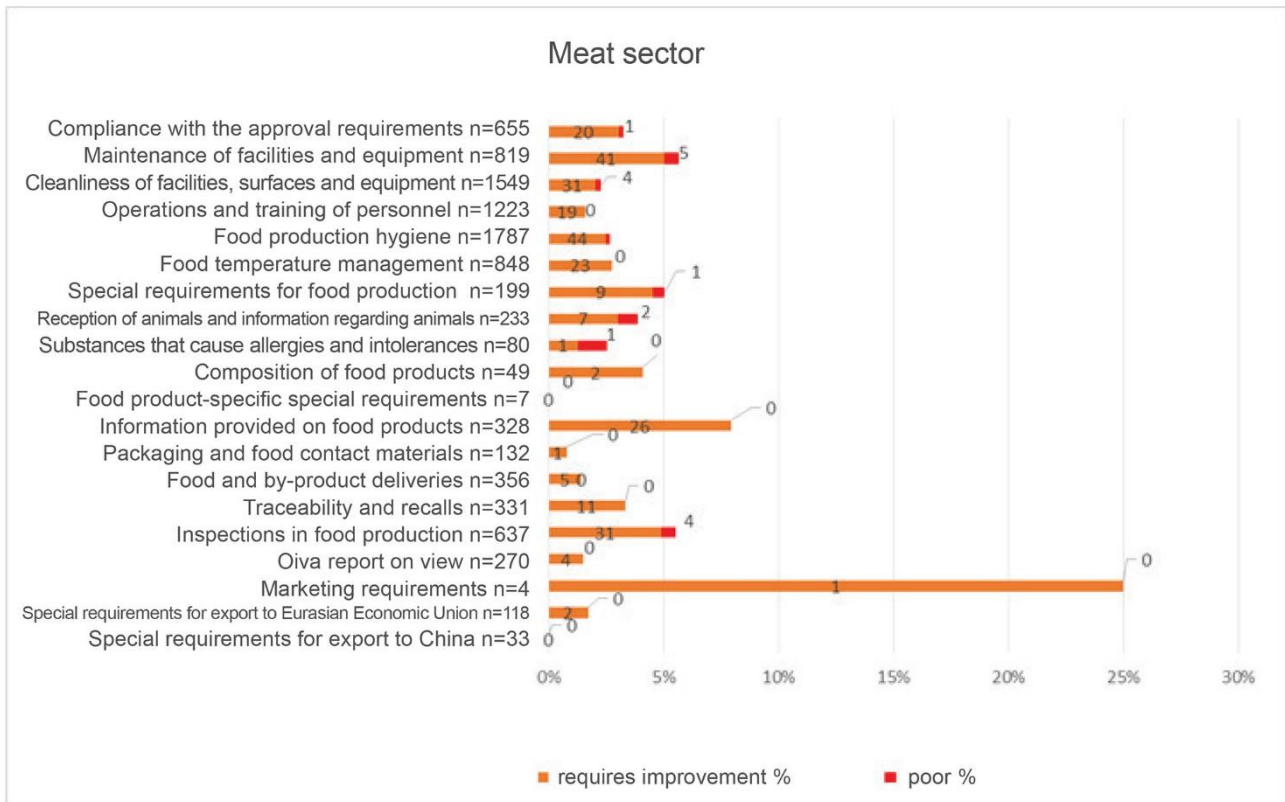


**Figure 15.** The requires improvement and poor ratings (number and %) concerning the requirements imposed on fish sector establishments; n = the number of inspections regarding the requirement in question

In 2017, the inspections in fish sector establishments focused on the production hygiene of food products (1,218 inspections), the cleanliness of the facilities, surfaces and equipment (1,120 inspections), and the operation and training of the personnel (816 inspections).

In fish sector establishments, the highest number of shortcomings (requires improvement or poor, i.e. C or D, respectively) was detected in the information provided on food products (the percentage of C and D results was 7.5% of the 225 inspections conducted) and in the inspections in food production (the percentage of C and D results was 6.7% of the 479 inspections conducted) (Figure 15).

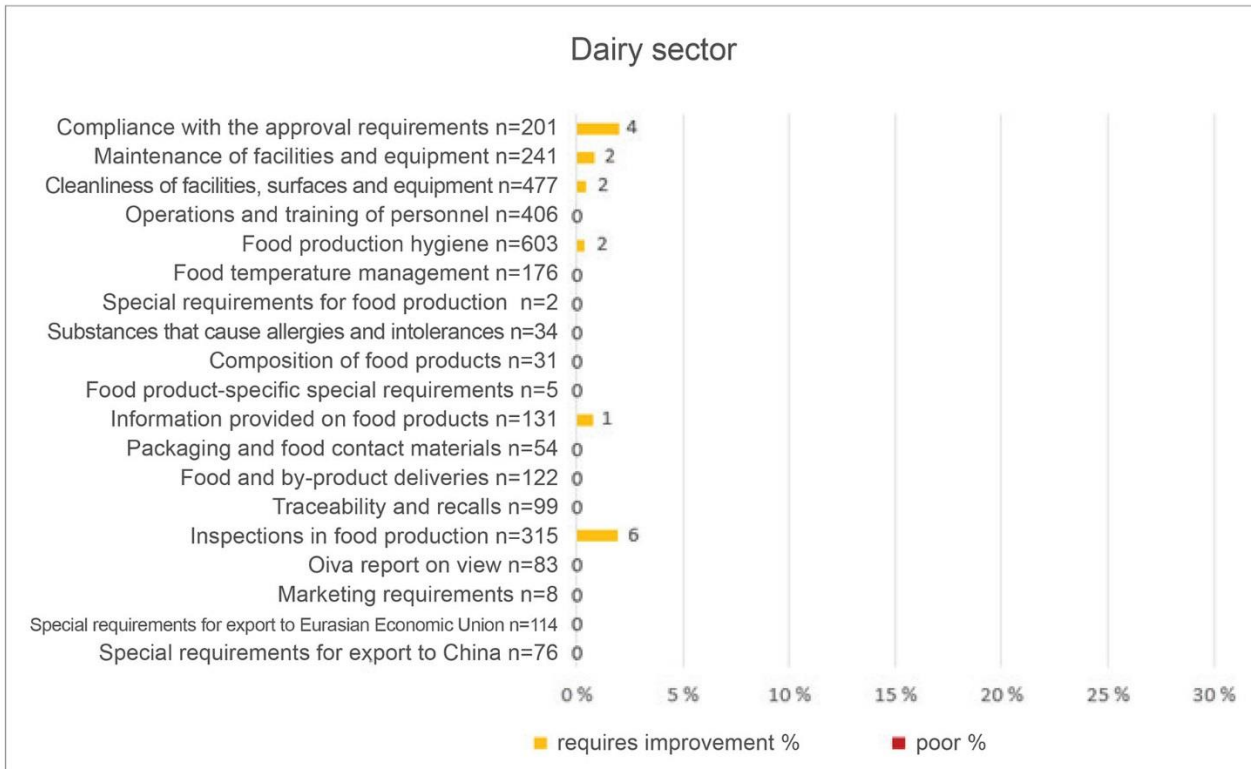
In the case of fish sector establishments, the majority of shortcomings in the information provided on food products was found in labelling. In the inspections in food production, the highest number of shortcomings was detected in sampling and own check control inspections, as well as the own check control for listeria. In fish sector establishments, only a very small number of inspections was conducted on the composition of food products even though the information provided on foods was inspected.



**Figure 16.** The requires improvement and poor ratings (number and %) concerning the requirements imposed on meat sector establishments; n = the number of inspections regarding the requirement in question

In meat sector establishments, the highest number of inspections concerned the cleanliness of the facilities, surfaces and equipment (1,549 inspections), the operations and training of the personnel (1,223 inspections), and the production hygiene of food products (1,787 inspections).

In meat sector establishments, the highest number of shortcomings (requires improvement or poor results), in relative terms, was detected in the maintenance of facilities and equipment (819 inspections), the information provided on food products (328 inspections) and the inspections in food production (637 inspections). In these items, the percentages of C and D ratings were six, eight and six per cent, respectively. In the inspections of sales requirements, 25% of the inspections resulted in a C or D rating, but this item was only inspected four times. In meat sector establishments, only a very small number of inspections was conducted on the composition of food products even though the information provided on foods was inspected.

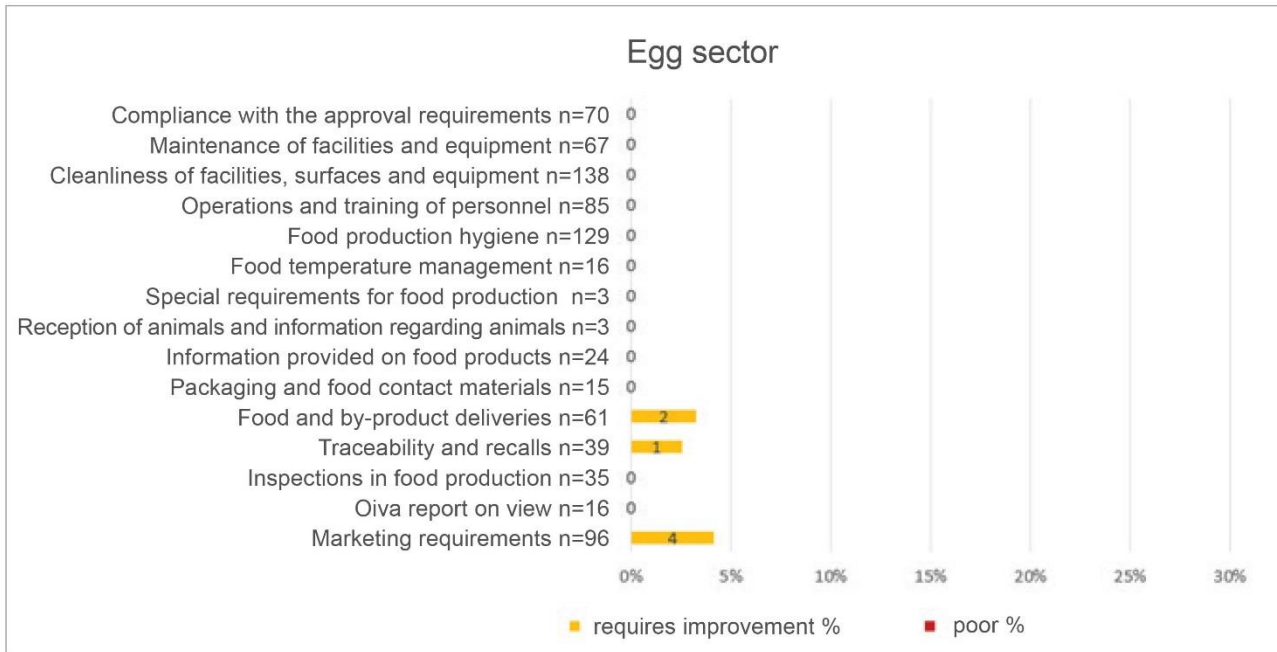


**Figure 17.** The requires improvement and poor ratings (number and %) concerning the different requirements in dairy sector establishments; n = the number of inspections regarding the requirement in question

The control in dairy sector establishments in 2017 focused on the production hygiene of food products (603 inspections). The cleanliness of the facilities, surfaces and equipment, as well as the operations and training of the personnel were also controlled frequently in comparison to other issues (477 and 406 inspections, respectively).

As for the Oiva requirements, the number of controls regarding the special requirements for food production, product-specific special requirements and the sale requirements was lowest in absolute numbers (2 to 8 inspections). Therefore, they are not comparable with the other requirements.

In dairy sector establishments, the three issues most frequently rated as requiring improvement (C) were inspections in food production (1.9% of 315 inspections), compliance with the approval requirements (2.0% of 201 inspections) and maintenance of facilities and equipment (0.8% of 241 inspections). Poor (D) rating was not given (Figure 17).



**Figure 18.** The requires improvement and poor ratings (number and %) concerning the requirements imposed on egg sector establishments; n = the number of inspections regarding the item in question

In egg sector establishments in 2017, the control was focused on monitoring the cleanliness of the facilities, surfaces and equipment (138 inspections), the monitoring of the production hygiene of food products (129 inspections) and sales requirements (96 inspections).

In absolute numbers, the requirements for food product temperature management, special requirements for food production, reception of animals and information on animals, packaging and food contact materials and the display of the Oiva report were inspected the least often (3–16 inspections). Therefore, the results of these inspections are not comparable with the results of the inspections of other requirements.

In the egg sector establishments, shortcomings (requires improvement, i.e. C results) were detected in the transport of food and by-products (the percentage of C results was 3.3% of the 61 inspections), traceability and withdrawal (the percentage of C results was 2.1% of the 39 inspections) and sales requirements (the percentage of C results was 4.2% of the 96 inspections). None of the inspections in egg sector establishments resulted in a poor rating (Figure 18).

#### 5.4. Other food premises

The number of registered food premises subject to food control that produce or package food products is presented in Figure 19.



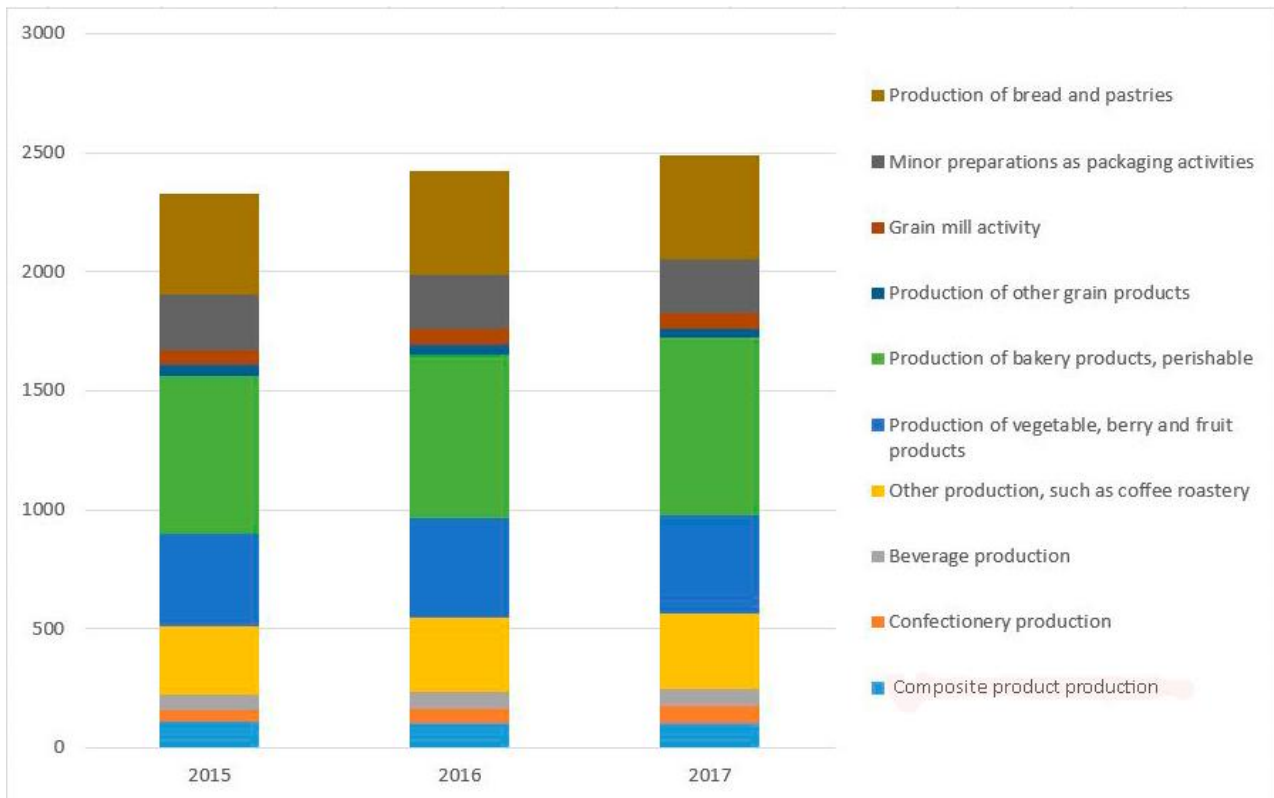


Figure 19. Number of registered food premises in 2015–2017

The number of food premises that are classified as other food premises has been increasing slightly.

Table 16. Food production sites, inspections and sanctions in 2017

Food premises	Sites			Inspections		Sanctions	
	Total (1 <sup>st</sup> pos.)	Inspected sites		Planned inspections, incl. follow-up inspections	Other than planned inspections	Inspections that resulted in a notice	Inspections that resulted in taking coercive measures
	number	number	%	number	number	number	number
<b>Cereal and vegetable sector</b>	1,920	725	38	801	82	119	11
- Grain mill activity	63	17	27	15	2	-	-
- Production of perishable bakery products	744	358	48	420	28	73	6
- Production of bread and pastries	433	39	39	180	23	22	3
- Production of other cereal products	39	14	36	14	-	-	-
- Production of plant, berry and fruit products	411	135	33	148	26	23	1
- Minor preparations as packaging activities	230	30	13	24	3	1	1
<b>Composite product production</b>	105	60	57	69	3	9	-
<b>Sweets production</b>	68	25	37	26	2	2	-



<b>Beverage production</b>	75	33	44	34	2	5	-
<b>Other production, such as dietary supplements, special diet products, coffee roastery</b>	318	108	34	117	13	13	-

Less than half (38%) of the food premises in the **cereal and vegetable sector** were inspected according to plan. In the case of premises that manufacture perishable bakery products, nearly half (48%) of the premises were inspected. The majority of the inspections were planned (801 inspections); only 82 inspections were other than planned. 119 inspections led to a notice and 11 inspections to administrative coercive measures.

About half (57%) of the sites that produce **composite products** were inspected. The majority of the inspections (69 cases) were planned (with three other than planned inspections), and nine inspections resulted in a notice.

Less than half (37%) of the food premises that produce **sweets** were inspected. 26 of the inspections were planned, and only two inspections were other than planned inspections. Two inspections resulted in a notice.

Slightly less than half (44%) of the sites that produce **beverages** were inspected. 34 of the inspections were planned, and only two inspections were other than planned inspections. Five inspections led to a notice.

One in three (34%) sites involved in **other production** were inspected; the majority of the inspections (117) were planned, 13 other than planned. The category of other production includes sites that produce dietary supplements and special diet products, for example (Table 16).

**Table 17.** Results of food production inspections in 2017

Food premises	Inspections	Results			
	Planned inspections, incl. follow-up inspections	Inspection-specific result			
	number	A, %	B, %	C, %	D, %
<b>Cereal and vegetable sector</b>	<b>801</b>	<b>43.2</b>	<b>42.1</b>	<b>13.9</b>	<b>0.8</b>
Grain mill activity	15	64.3	35.7	-	-
Production of perishable bakery products	420	36.6	45.9	16.4	1.1
Production of bread and pastries	180	47.6	38.2	13.5	0.6
Production of other cereal products	14	71.4	28.6	-	-
Production of vegetable, berry and fruit products	148	45.7	42	12.3	-
Minor preparations as packaging activities	24	76.2	19.0	-	4.8
<b>Composite product production</b>	69	46.9	39.1	14.1	-
<b>Sweets production</b>	26	64.0	24.0	12.0	-
<b>Beverage production</b>	34	48.5	42.4	9.1	-
<b>Other production*</b>	117	52.3	35.5	12.1	-

\* such as dietary supplements, special diet products, coffee roastery

In the Oiva inspections of the operators in the **cereal and vegetable sector**, 85% of sites received an excellent or good (A or B) result, and about 15% were rated as requiring improvement or poor (C or D).

86% of the sites that produce **composite products** received an excellent or good result, and 14% of the sites were rated as requiring improvement. None of the sites was rated as poor.

In **sweets production**, 88% of the sites were rated as excellent or good, and 12% were rated as requiring improvement.

91% of the inspected companies that produce **beverages** achieved an excellent or good result. In 9% of the sites improvement was required.

In **other production**, 88% of the sites achieved an excellent or good result, and improvement was required in 12%.

**Table 18.** The distribution of the requirement-specific planned inspections and follow-up inspections of food production in 2017

Food premises	Planned inspections					Follow-up inspections					
	Inspections	Distribution of results concerning the requirements imposed on food premises %				Follow-up inspections required	Follow-up inspections conducted	Distribution of results concerning the requirements imposed on food premises %			
	number	A	B	C	D	number	number	A	B	C	D
<b>Cereal and vegetable sector</b>	734	87.0	10.5	2.2	0.3	111	88	65.3	23.8	8.0	2.9
<b>Composite product production</b>	64	86.8	8.8	4.4	-	9	5	55.2	20.7	24.1	-
<b>Sweets production</b>	25	90.5	8.8	0.7	-	3	1	100	-	-	-
<b>Beverage production</b>	33	90.8	8.1	1.1	-	3	1	63.2	3.8	-	-
<b>Other production*</b>	107	90.0	8.1	1.9	-	13	13	70.2	20.2	9.6	-

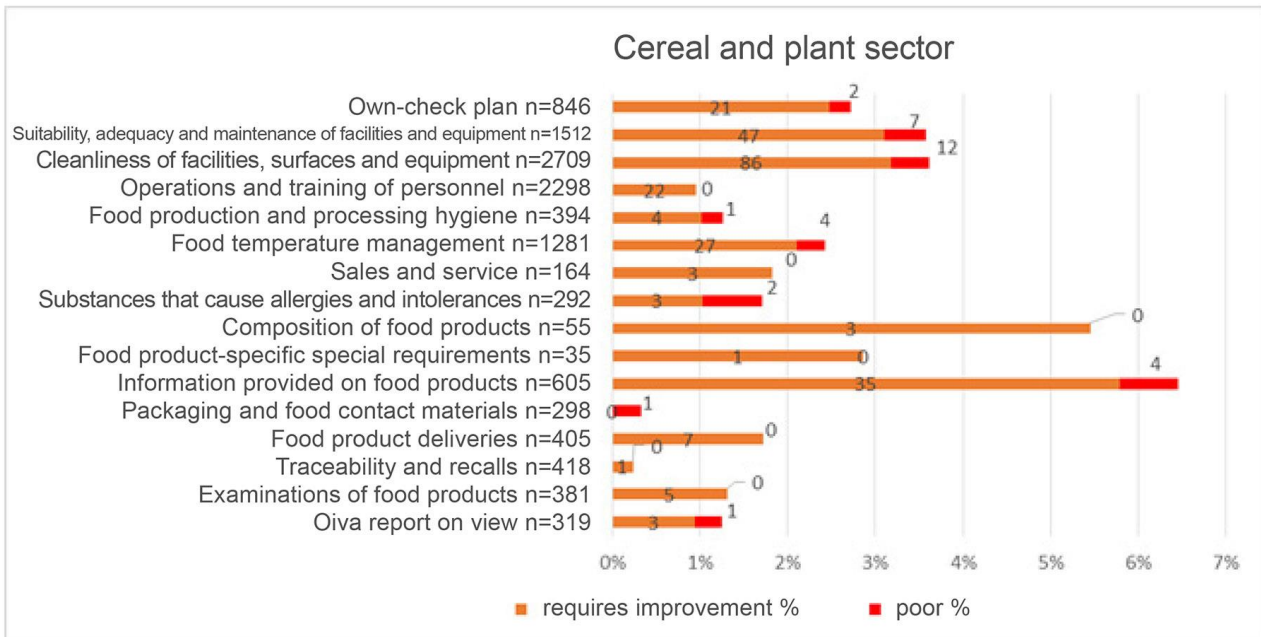
\* such as dietary supplement, special diet products, coffee roastery

In the **cereal and vegetable sector**, 111 follow-up inspections were required, 88 of which were conducted. Some of the follow-up inspections for inspections carried out towards the end of the year may not have been conducted until in the following year. After these follow-up inspections, 89.1% of the inspected items received an issue-specific rating of excellent or good, whereas 10.9% were still rated as requiring improvement or poor.

In the case of **combination products**, nine follow-up inspections were needed, five of which were conducted. The inspected items received excellent and good ratings in 75.9% and required improvement in 24.1% of the cases.

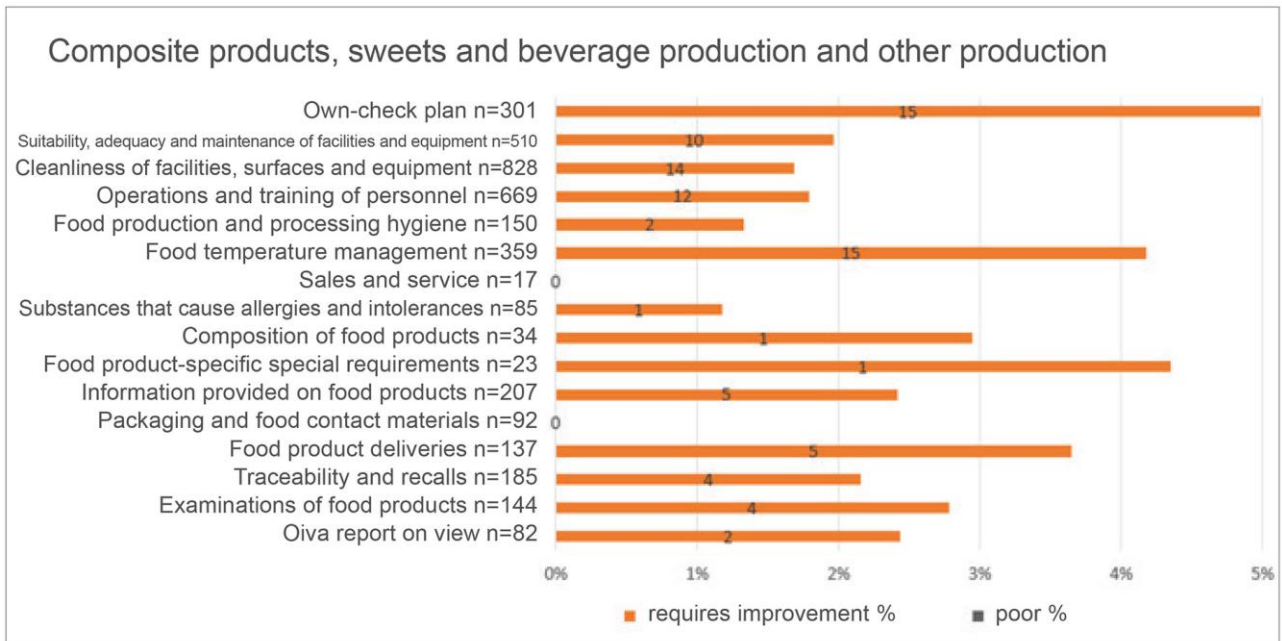
In the sites that produce sweets and beverages, one follow-up inspection in each was conducted while three would have been required in each. The follow-up inspection of the company that produces **sweets** resulted in an item-specific A result whereas the company that produces **beverages** received excellent results in 63.2% and good in 36.8% of the inspected items.

All the required follow-up inspections (13) were carried out in the sites involved in **other production**. After the follow-up inspections in these sites, 90.4% of the inspected items were rated excellent or good, and 9.6% required improvement (Table 18).



**Figure 20.** The requires improvement (C) and poor (D) ratings (number and %) concerning the requirements imposed on cereal and vegetable sector operations; n = the number of inspections regarding the requirement in question

The inspections carried out show that legislation is well complied with in the cereal and vegetable sector. Shortcomings were mostly detected in the information provided on food products (39 cases or 6.5%), the cleanliness (98 cases) and maintenance (54 cases) of the facilities, surfaces and equipment, with the percentage being 3.6% in these two items, and in the temperature management of food products (31 cases or 2.4%) (Figure 20).



**Figure 21.** The requires improvement and poor ratings (number and %) concerning the requirements imposed on composite products, sweets and beverage production and other production, such as dietary supplements, special diet products and coffee roasting; n = the number of inspections regarding the requirement in question

The inspections carried out indicate that the production of composite products, sweets and beverages, as well as other production, are at a good level of compliance. The shortcomings detected in the inspections were occasional (Figure 21). The majority of shortcomings were detected in the own check control plans (15 cases), temperature management of food products (15 cases), cleanliness of the facilities, surfaces and equipment (14 cases) and in the operations and training of the personnel (12 cases). (Figure 21)

## 5.5. Organic production

The control of organic production was implemented according to plan, and the targeted efficacy – ensuring the reliability of the labelling as organic – was achieved. Over 98% of the operators that had signed up in the control system complied with the requirements imposed on the production.

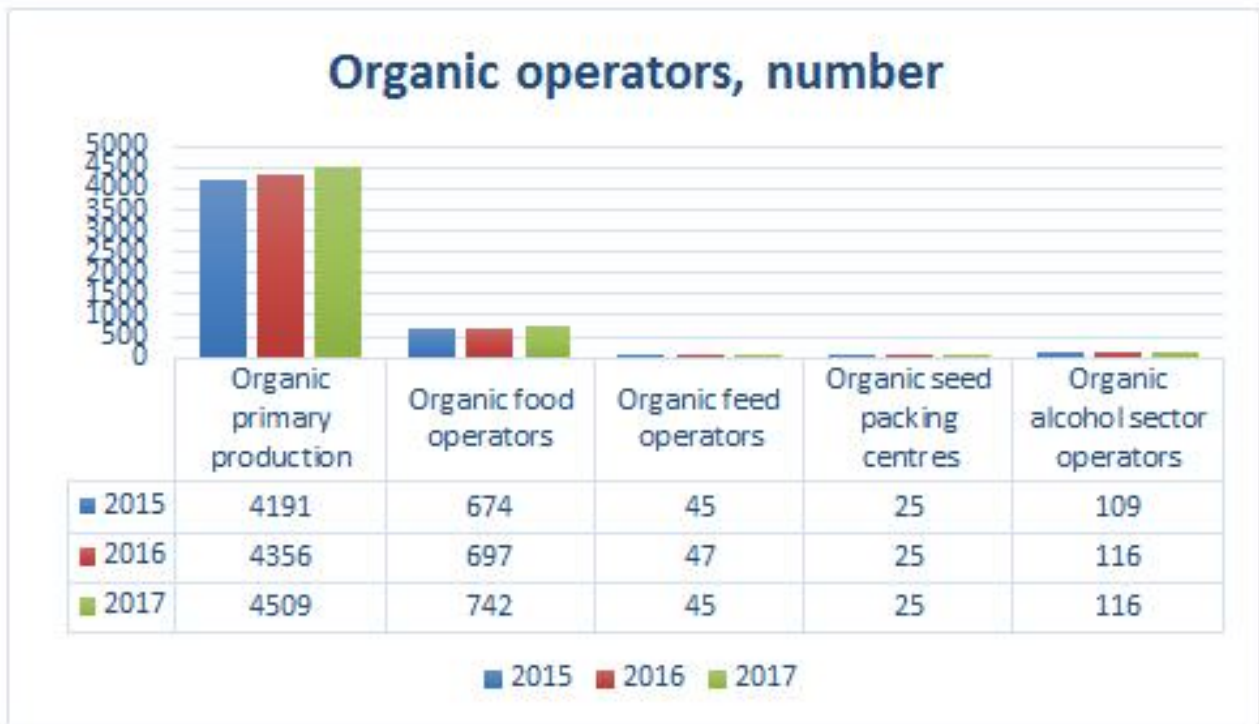


Figure 22. The number of inspected operators in 2017

Table 19. Inspections in market surveillance for organic food

	2015	2016	2017
<b>Inspected sites, number</b>	43	165	209
<b>Number of inspections, type of site</b>	43	167	211
- retailers	26	146	209
- serving establishments	12	14	
- producers	5	7	

Table 20. The results of market surveillance inspections in 2016–2017

Results scale		Corrective measure	Percentage (%) of inspected	
			2016	2017
A	All requirements complied with	No measures	95	93
B	Minor shortcoming	Guidance and instruction	5	7
C	Misleading operation	A notice requiring correction within a set time limit	0	0.5
D	Seriously misleading operation	Coercive measure or prohibition, issue must be rectified immediately	0	0

Municipal food inspectors conducted a total of 211 inspections to monitor the sale of organic products. The results of the market surveillance in retail sales indicate that consumers can rely on the authenticity of the labelling of organic products.

Control report on organic production in 2017 (in Finnish): [https://www.evira.fi/globalassets/yhteiset/luomu/luonnonmukaisen\\_tuotannon\\_valvontaraportti\\_2017.pdf](https://www.evira.fi/globalassets/yhteiset/luomu/luonnonmukaisen_tuotannon_valvontaraportti_2017.pdf)

## 5.6. Alcoholic beverages

Figure 23 presents the number of production and wholesale sites of alcoholic beverages in 2013–2017.

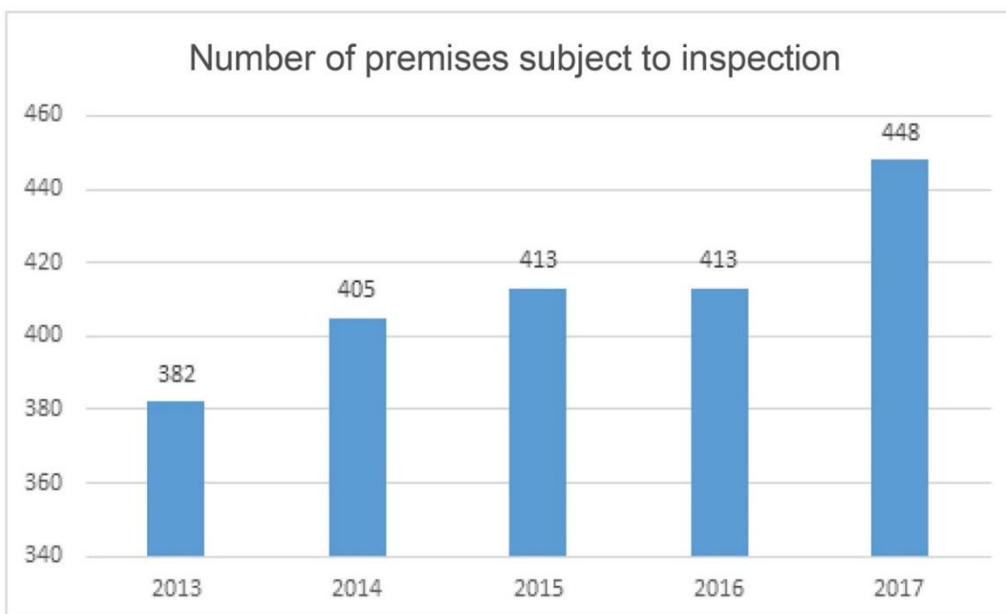


Figure 23. Alcoholic beverage production and wholesale sites in 2013–2017

The number of controlled production and wholesale sites of alcoholic beverages, the inspections conducted and sanctions imposed are presented in Table 21.

**Table 21.** Alcoholic beverage production and wholesale sites, inspections and sanctions in 2017

	Sites			Inspections		Sanctions	
	Total	Inspected sites		Planned inspections, incl. follow-up inspections	Other than planned inspections	Sites where inspections led to a notice	Inspections that resulted in taking coercive measures
	number	number	%	number	number	number	number
Production and wholesale of alcoholic beverages	448	97	22	146	3	18	9

The shortcomings detected in the inspections of the producers of alcoholic beverages mostly concerned the own check control plan and in the case of products, errors in labelling, discrepancies in the alcoholic content and inadequate bookkeeping. Irregularities were also detected in the composition of the products. The most common shortcomings in the case of wholesale dealers were detected in the obligatory information on the labelling required in the legislation and composition of the products. The majority of shortcomings detected in the inspections concerned the reporting requirements to authorities according to the Finnish Alcohol Act.

In addition to the labelling, shortcomings were detected in the indication of the alcoholic content. In some products, the alcoholic content determined in an analysis was outside of the tolerance defined in the legislation for the alcoholic content indicated in the labelling.

## 5.7. Food contact materials

In 2017, the number of control sites registered primarily as operators in the contact material sector was 414. The total number of control sites within the contact material sector was 496. This figure also includes the operators that primarily operate in the food premises sector, but additionally import contact material, for instance. These types of control sites include several wholesale dealers, for example. The number of control sites was slightly higher than the year before, which may be the result of the request to the control units to carry out a mapping of contact material sites within their areas in 2017. The majority of the registered control sites in the contact material sector are located in Southern, Western and Inner Finland (311 sites that primarily operate in the contact material sector).

The food control inspections focused on the contact material sector in 2017 are summarised in Table 22.

**Table 22.** Inspections of sites within the food product contact material sector in 2017

Control sites	Sectors	Inspected sites		Inspections	Inspection-specific results				Inspections that led to a notice	Sites in which coercive measures were taken
number	number	number	%	number	A %	B %	C %	D %	number	number
496	810*	57	11.5	69	45.1	41.4	12.7	0	8	0

Of the contact material control sites, 57 were inspected, which is only 14% of the control sites. The number of inspections was 69. The inspections were distributed highly unevenly between different control units. In Southern Finland, where the number of control sites in the contact material sector is the highest (212 primary controls sites), 46 inspections (17% of the sites) were conducted. The number of inspections in Western and Inner Finland was eight (98 primary sites, 9% of sites were inspected), 11 in South-Western Finland (53 primary sites, 15% of sites were inspected), two in Eastern Finland (27 primary sites, 7% of sites inspected) and two in Northern Finland (14 primary sites, 14% of sites were inspected). In Lapland, inspections were not carried out in the contact material sector (there are 10 primary sites in the area).

A total of 29 control units did not conduct any inspections in the contact material sector. This is only four control units fewer than in 2016. There are a total of 130 operators in the contact material sector in these control units, which is 31% of all the control sites that are primarily registered as operators in the contact material sector (414 in total). There are 11 control units with over ten control sites in the contact material sector. Within them, there are a total of 230 primary control sites in the contact material sector (56% of all primary sites). Only 37 inspections were carried out in these control units (16% of the primary control sites in the contact material sector within the area of the control units).

In addition to rating the individual requirements, the inspected entity is evaluated by using a rating scale from A to D. A rating of A was awarded to 45.1% of the inspected sites, 41.4% were rated B, 12.7% C and 0.8% of the inspected sites were rated D. Eight notices were given, and none of the inspections resulted in coercive measures. Only five follow-up inspections were carried out, but it is possible that some of the follow-up inspections were only conducted in the following year.



**Table 23.** Inspections of primary operations within the food product contact material sector in 2017

Food product contact material operations	Sector-specific operations	Inspections/inspected site	Results of individual items				Inspections that led to a notice	Sites in which coercive measures were taken
	number	number	A, %	B, %	C, %	D, %	number	number
Active and intelligent materials and packages	5	1/1	28.6	28.6	42.9	0	1	0
Glue	10							
Ceramics	97	7/7	76.2	23.8	0	0	0	0
Cork	8							
Rubber	27	2/2	25.0	75.0	0	0	0	0
Glass	37	1/1	66.7	33.3	0	0	0	0
Ion-exchange resin	2							
Metals and alloys	85	8/8	47.4	31.6	21.1	0	3	0
Paper and cardboard	171	12/12	82.1	3.6	14.3	3.8	1	0
Plastics	203	28/24	74.2	24.7	1.1	0	1	0
Ink	13							
Regenerated cellulose	7							
Silicones	28							
Textiles	23							
Varnish and coating	11							
Wax	3							
Wood	31	1/1	16.7	16.7	66.7	0	1	0
Other	49	12/6	72.4	13.8	13.8	0	1	0
<b>Total</b>	<b>810</b>	<b>72/62</b>	<b>69.1</b>	<b>22.2</b>	<b>8.7</b>	<b>0</b>	<b>8</b>	<b>0</b>

In terms of primary operations, the highest number of inspections was carried out in companies that process the most common materials, i.e. plastics, paper and cardboard, and metals.



**Figure 24.** The requires improvement (C) and poor (D) ratings (number and %) concerning the requirements imposed on contact material sector operators; n = the number of inspections regarding the requirement in question

Due to the small number of inspections and the fact that only 14% of sites in the contact material sector were inspected, the results cannot be used for drawing any reliable conclusions on the state of the operations of companies in the contact material sector. However, the results of the inspections shown in Figure 24 imply that the highest number of causes for notice were found in the shortcomings in the quality assurance system according to the GMP regulations, as was the case in the previous year as well. While the operators in the contact material sector often follow other quality systems (such as ISO 9001 or ISO 14000), they often do not address the functions that focus on food safety, save for traceability. Many small and medium-sized operators in the contact material sector are still unaware of the legislation that applies to food contact materials and the requirements it imposes on contact materials.

Shortcomings were also detected in the compliance documents. The same issue is observed in food premises where these documents are also inspected. Therefore, the most effective manner of influencing the issue is to control the compliance documents and their content at the operator's premises, which also directly influences the Oiva results for food contact materials in food premises. A change to the previous year is the fact that none of the inspections of the operators in the contact material sector resulted in a D rating in 2017.

## 5.8. Transport of food

Table 24. Controlled sites, inspections and sanctions within transport of food

Transport	Sites			Inspections		Sanctions	
	Total	Inspected sites		Planned inspections, incl. follow-up inspections	Other than planned inspections	Inspections that resulted in a notice	Inspections that resulted in taking coercive measures
	number	number	%	number	number	number	number
<b>Food product wholesale selling *</b>	<b>1396</b>	<b>184</b>	<b>13</b>	<b>183</b>	<b>16</b>	<b>6</b>	
- transport	711	93	13	92	9	3	
- chilled transport	449	61	14	64	4	2	
- non-chilled transport	107	8	7	7	1		
- frozen transport	129	22	17	20	2	1	
Distribution and transport of alcoholic beverages	297	11		11	0		6**

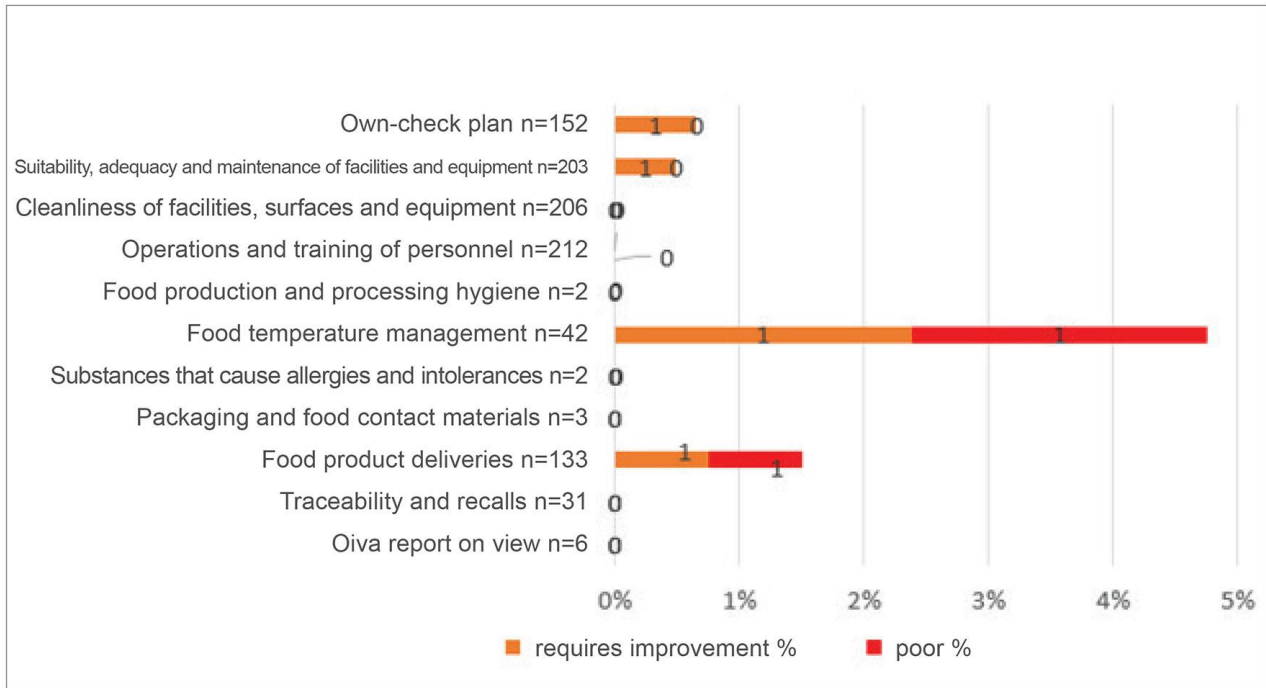
\* excl. sites that distribute or transport alcoholic beverages

\*\* sites where shortcomings were detected

As indicated in Table 24, the control still only covers a low percentage of transport of food. Nevertheless, the number of inspections of frozen goods transports in particular has increased. The low number of inspections is partly due to the difficulties in reaching the transport equipment. In the case of transports, the receiving parties tend to place high demands on the transportation temperatures. It has been determined that reception policies and own check controls function well in this aspect. The inspections have focused on own check control plans and their sufficiency, the general suitability of the facilities for transport activities and the temperature control in transportation. In addition, attention was paid to the conditions during transport depending on the type of transportation. Some cause for notice was detected in the temperature control.

Table 25. Inspection-specific results in transport of food

Transport	Inspections		Result			
	Re-inspections according to the plan		Inspection-specific result			
	number		A %	B %	C %	D %
<b>Transport of food</b>						
transport	92		88,6	8	1,1	2
chilled transport	64		62,5	34,4	3,1	
non-chilled transport	7		57,1	42,9		
frozen transport	20		85	10	5	



**Figure 25.** The requires improvement (C) and poor (D) ratings (number and %) concerning the requirements imposed on transport of food; n = the number of inspections regarding the requirement in question

### **The inspections of international transportations of perishable food products and the necessary special equipment**

A total of 39 ATP inspections were conducted in the control units. The number of inspected control sites was 32. Four notices were given in connection with the inspections. The causes for notices were shortcomings in the ATP documentation and in the plates that indicate the ATP classification of a vehicle or in the condition of the plates. The number of inspections of ATP vehicles was lower than in 2016. Since ATP vehicles are certified and monitored within the certification system, it is not sensible to direct the resources available in food control into monitoring the technical characteristics of the vehicles in a larger scale than is currently done. There are 526 ATP vehicles registered in the municipal control units.

## 5.9. Food product wholesale selling and storage

**Table 26.** Controlled sites, inspections and sanctions within wholesale and storage in 2017

Food premises	Sites			Inspections		Sanctions	
	Total	Inspected sites		Planned inspections, incl. follow-up inspections	Other than planned inspections	Inspections that resulted in a notice	Inspections that resulted in taking coercive measures
	number	number	%	number	number	number	number
<b>Food product wholesale selling</b>	542	165	30	180	46	41	1
<b>Food product storage and freezing</b>	671	206	31	235	54	27	1
- storage of food products of animal origin	148	76	51	105	27	12	8
- storage of other food products	480	116	24	118	21	12	11
- food product freezing	17	6	35	4	5		
- food product packaging	26	8	31	8	1	3	3

There are a total of 542 wholesale sites, 165 (30%) of which were inspected. One in four inspections were other than planned inspections. The inspections resulted in 41 notices, and one inspection led to administrative coercive measures.

A total of 206 (31%) of the 671 controlled sites involved in storage and freezing were inspected. Slightly over one in four of these inspections were other than planned inspections. A qualified majority, 480, of the sites involved in the storage and freezing of food products stored and froze other products than those of animal origin. 116 (24%) of these sites were inspected. The inspections resulted in 12 notices, and 11 inspections led to administrative coercive measures. A total of 148 sites were involved in the storage of products of animal origin, 76 (51%) of which were inspected. 12 notices were given and administrative coercive measures were taken eight times.

Table 27. Inspection-specific results of food product wholesale and storage in 2017

Food premises	Inspections	Results			
	Planned inspections, incl. follow-up inspections	Inspection-specific results			
	number	A, %	B, %	C, %	D, %
Food product wholesale selling	180	54.1	24.1	18.8	2.9
Food product storage and freezing, totals	235	56.8	32.7	10	0.5
- storage of food products of animal origin	105	59.8	29.9	9.3	1.0
- storage of other food products	118	56.6	34.5	8.8	
- food product freezing	4	25	50	25	
- food product packaging	8	33.3	33.3	33.3	

The inspection-specific Oiva rating of excellent or good (A or B) was awarded to 78% and the rating of requires improvement or poor (C or D) to 22% of the wholesale sites (Table 27).

The inspection-specific Oiva result of excellent or good (A or B) was awarded to 89.5% and the result of requires improvement or poor (C or D) to 10.5% of sites involved in the storage and freezing of food products.

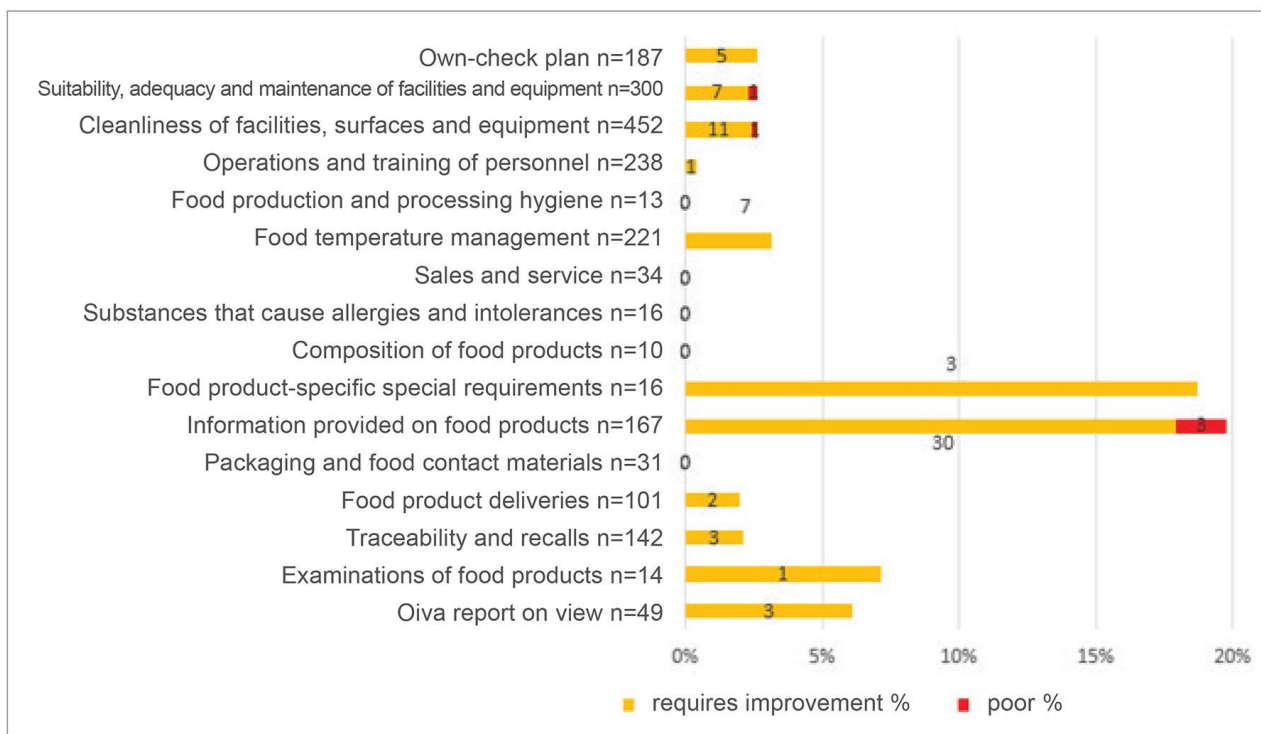
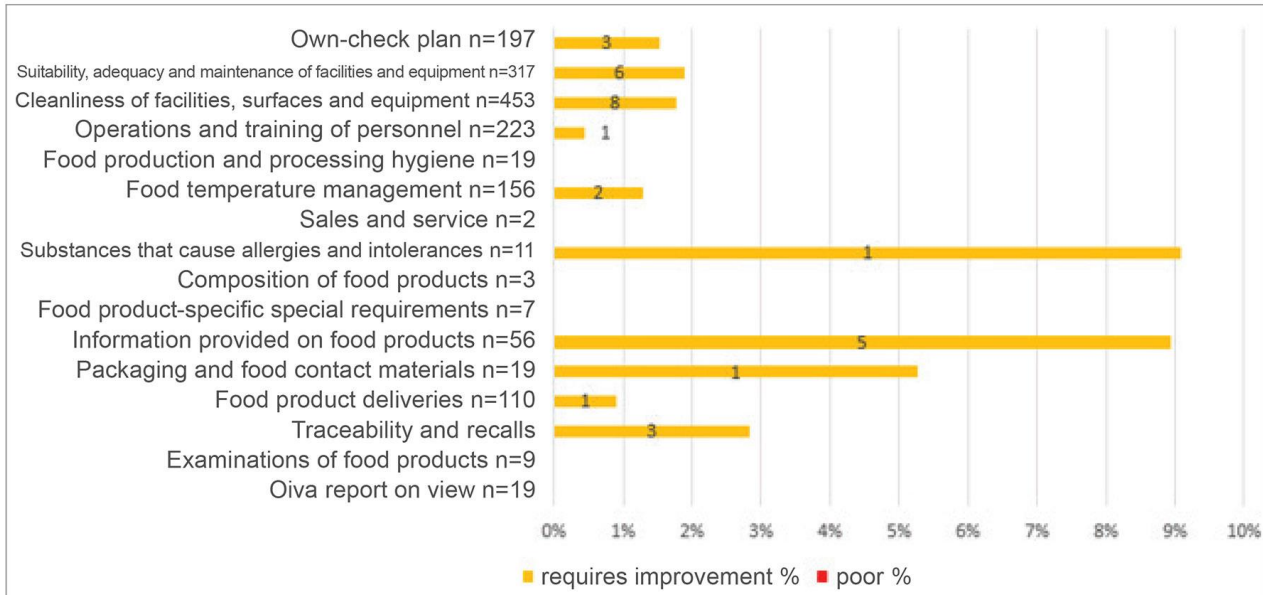


Figure 26. The requires improvement (C) and poor (D) ratings (number and %) concerning the requirements imposed on the wholesale selling of food products; n = the number of inspections regarding the requirement in question

In the wholesale selling of food products, the percentage of A and B ratings was 78%. The highest number of shortcomings (C or D rating) was detected in the information provided on food products (33 C or D results, the percentage of them being 20%) and in the cleanliness of the facilities, equipment and surfaces (12 C or D results, 2.6%) (Figure 26).



**Figure 27.** The requires improvement and poor ratings (number and %) concerning the requirements imposed on the storage and freezing of food products; n = the number of inspections regarding the requirement in question

In the storage and freezing of food products, the requirements were mostly complied with or the shortcomings detected were minor. 91% of the results obtained in the items were excellent or good. In the case of the information provided on foods, the item-specific result was requires improvement in 8.9% (5 cases) of the inspections, in the cleanliness of the facilities, equipment and surfaces in 1.8% (8 cases) of the inspections, and in the case of the suitability, adequacy and maintenance of facilities and equipment, in 1.9% (6 cases) of the inspections (Figure 27).

## 5.10. Food product retail sale

**Table 28.** Controlled sites, inspections and sanctions within retail sales of food products; all inspections in 2017

Food premises	Sites			Inspections		Sanctions	
	Total	Inspected sites		Planned inspections, incl. follow-up inspections	Other than planned inspections	Inspections that resulted in a notice	Inspections that resulted in taking coercive measures
	number	number	%	number	number	number	number
<b>Food product retail sales</b>	10,787	3,849	36	4,177	534	585	18

There was a total number of 10,787 retail sites, 36% of which were inspected. A total of 585 inspections resulted in notices, and in 18 of them coercive measures were taken (Table 28).

**Table 29.** The inspection-specific Oiva results of food product retail sales in 2017

Food premises	Inspections	Results			
	Planned inspections, incl. follow-up inspections	Inspection-specific results			
	number	A, %	B, %	C, %	D, %
Food product retail sales	4,177	45	40.3	13.5	1.1

The rating of excellent or good (A or B) was awarded to about 85% and the rating of requires improvement or poor (C or D) to about 15% of the retail shops (Table 29).

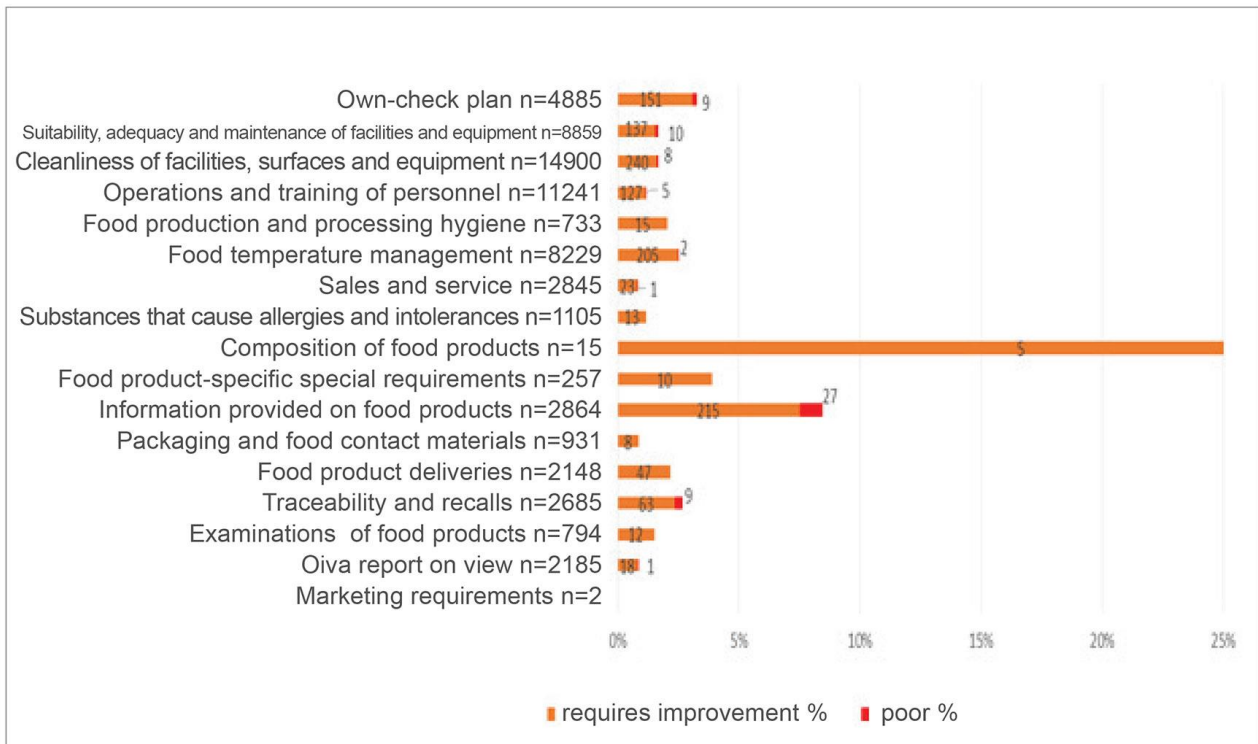
**Table 30.** The distribution of the requirement-specific ratings given in planned inspections and their follow-up inspections of retail sales of food products and food service in 2017

Food premises	Planned inspections					Follow-up inspections					
	Inspections	Distribution of results concerning the requirements imposed on food premises				Follow-up inspections required	Follow-up inspections conducted	Distribution of results concerning the requirements imposed on food premises			
	number	A, %	B, %	C, %	D, %	number	number	A, %	B, %	C, %	D, %
Retail sales	3,994	88.7	9.0	2.1	0.1	620	450	73.7	18.3	6.9	1.0
Serving	15,535	88.2	9.6	2.1	0.1	2,097	1,780	75.9	18.0	5.3	0.7

Out of the planned inspections of retail sites, 98% of the item-specific ratings were excellent (A) or good (B), and 2.2% required improvement (C) or were poor (D).

The required number of follow-up inspections of retail sites was 620, but only 450 (73%) of them were conducted. It is possible that some of the follow-up inspections were combined with the subsequent planned inspections and others were postponed until the following year. After follow-up inspections, 92% of the ratings of the different items were excellent or good. The percentage of requires improvement or poor ratings in the follow-up inspections was 7%. It is possible that other shortcomings were detected during the follow-up inspections, which may have led to the results not improving.





**Figure 28.** The requires improvement (C) and poor (D) ratings (number and %) concerning the requirements imposed on retail sales; n = the number of inspections regarding the requirement in question

In the retail sales of food products, the requirements were mostly complied with or the shortcomings detected were minor. Over 96% of the item-specific results were excellent or good. In the case of information provided on food products, the percentage of item-specific good and excellent ratings was 92%. The percentage of excellent and good results in the composition of food products was 67%. However, this item was only inspected 15 times due to the scarcity of operations related to this item in retail sales.

In the retail sales of food products, the shortcomings (requires improvement or poor results) concerned the own check control plans or records related to them (3.1% or 160 cases), the suitability and condition of facilities and equipment (1.6% or 147 cases), cleanliness (1.7% or 248 cases) and the item regarding the temperature management of food products (2.5% or 207 cases) (storage conditions and temperatures of food products, records regarding them and the management of the times of usage). The highest number of shortcomings in the information provided on food products was found in marketing (29% or 20 cases) and nutrient declarations (14.7% or 13 cases).

The controlled sites, inspections and sanctions within low-risk activity involving food products in 2017 are presented in Tables 31 and 32.

**Table 31.** Controlled sites, inspections and sanctions within low-risk activities involving food products in 2017

Low-risk activity	Sites			Inspections		Sanctions	
	Total	Inspected sites		Planned inspections, incl. follow-up inspections	Other than planned inspections	Inspections that resulted in a notice	Inspections that resulted in taking coercive measures
	number	number	%	number	number	number	number
Meat handling	124	21	17	23	1	2	0

**Table 32.** Inspection-specific results of low-risk activities involving food products

Low-risk activity	Inspections	Results			
	Planned inspections, incl. follow-up inspections	Inspection-specific results			
	number	A, %	B, %	C, %	D, %
Meat handling	23	27.3	63.6	9.1	0

Low-risk activity means the handling of products of animal origin according to the national decree 1258/2011. In 2017, 17% of these operators that handle meat were inspected. The inspections were mainly planned. Two inspections resulted in a notice (Table 31).

Low-risk activity has complied with the requirements or the shortcomings detected have been minor. Two inspections resulted in a requires improvement rating. The shortcomings concerned own check controls and the suitability, condition and cleanliness of facilities, equipment and surfaces.

### 5.11. Food service

The number of serving establishments subject to food control are presented in Figure 29.

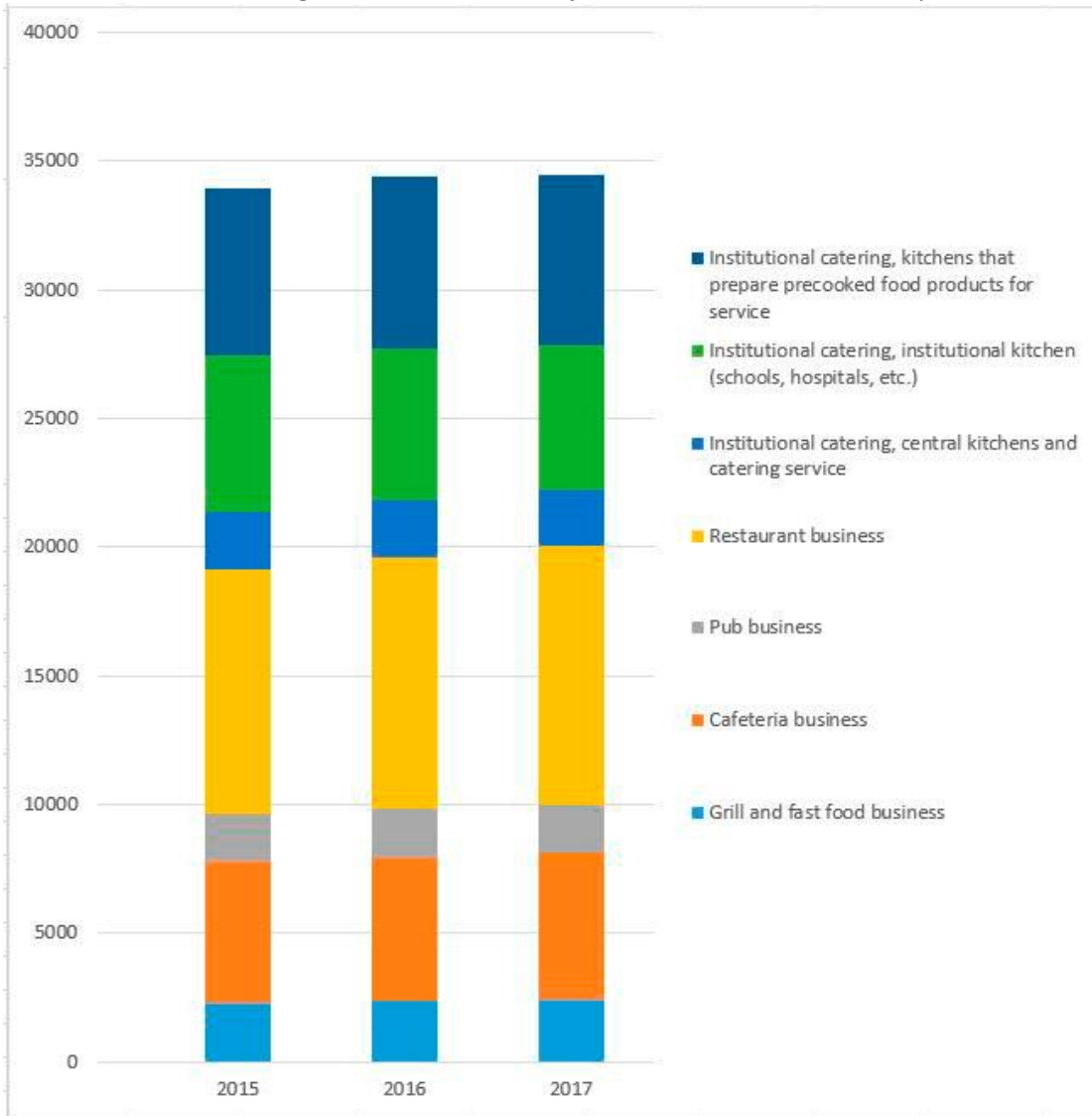


Figure 29. The number of municipally controlled serving establishments in 2015–2017

In 2017, the total number of serving establishments was 34,474 (Table 33).

**Table 33.** Controlled sites, inspections and sanctions within food service in 2017

	Sites			Inspections		Sanctions	
	Total	Inspected sites		Planned inspections, incl. follow-up inspections	Other than planned inspections	Inspections that resulted in a notice	Inspections that resulted in taking coercive measures
	number	number	%	number	number	number	number
<b>Food service, totals</b>	<b>34,474</b>	14,354	42	16,067	976	2,059	50
- grill and fast food business	2,443	1,017	42	1,101	126	163	2
- cafeteria business	5,678	1,849	33	1,930	146	208	3
- pub business	1,867	242	13	221	38	17	-
- restaurant business	10,022	5,713	57	6,746	468	1,320	36
- institutional catering, central kitchen	2,180	1,300	60	1,687	59	114	4
- institutional catering, institutional kitchen	5,660	2,459	43	2,556	79	131	2
- institutional catering, kitchens that prepare precooked food products for service	6,624	1,774	27	1,828	60	106	3
<b>Control by the Finnish Defence Forces</b>							
- institutional catering and field kitchen services	174	76	44	81	18		44

Serving establishments are classified in five categories, according to their activities. The percentage of institutional kitchens is the highest (42%), followed by restaurants (29%) (Figure 29 and Table 33).

In 2017, municipal food control authorities inspected 42% (14,354) of all serving establishments (34,474). The majority (94% or 16,067 cases) of the inspections were planned inspections (incl. follow-up inspections). 2,059 inspections resulted in a notice and 50 inspections led to coercive measures.

Though the required number of follow-up inspections was 2,097, 1,780 of them were carried out. It is possible that some of the follow-up inspections were combined with the subsequent planned inspections and others were postponed until the following year. In the item-specific inspections, 98% of the ratings were excellent (A) or good (B). After follow-up inspections, 94% of the ratings were excellent or good. The percentage of requires improvement or poor ratings was 6% (Table 34). In addition, other factors may have been inspected in connection with the follow-up inspections, which may have revealed additional shortcomings.

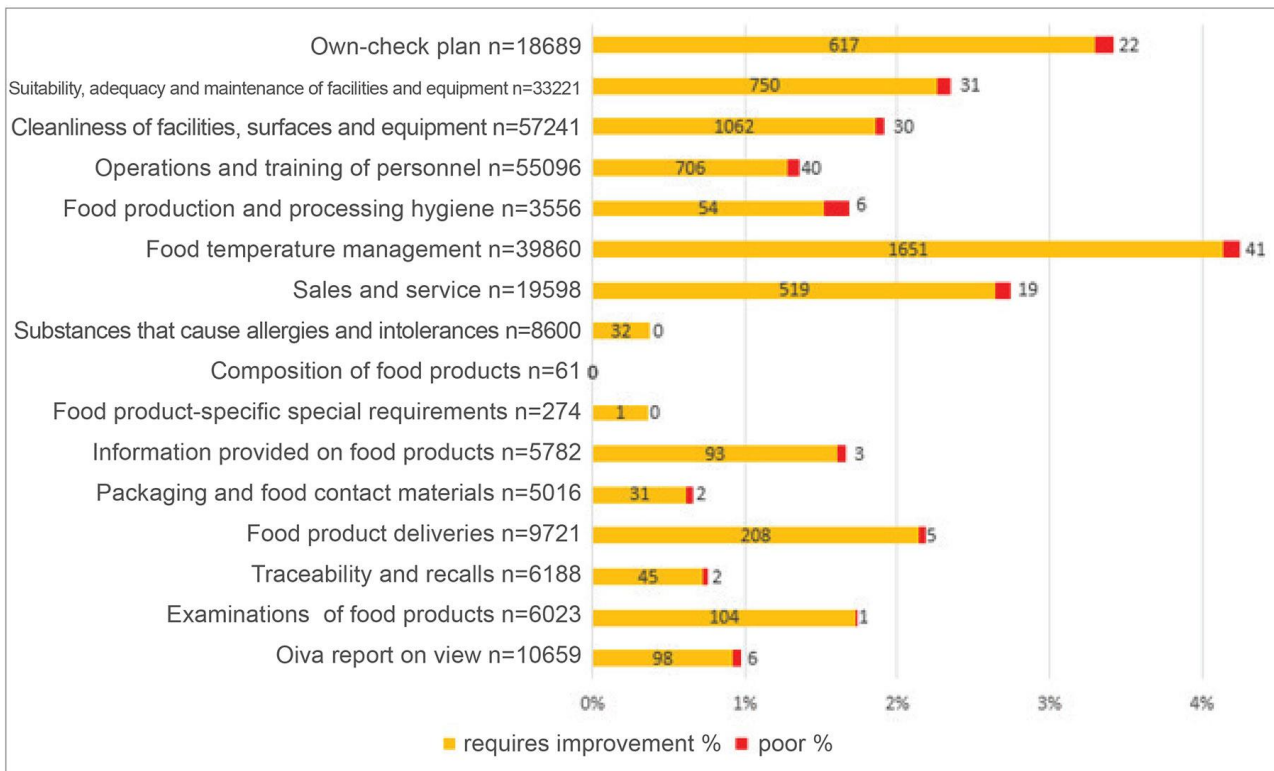
In relative terms, the most frequently inspected serving establishments were institutional kitchens (central kitchen operations) and restaurants as well as grills and fast food restaurants; the least frequently inspected

serving establishments were pubs. Other than planned inspections (6%) usually concerned issues such as consumer reclamations, suspected food poisonings and other suspicions. Joint inspections carried out by two inspectors are also recorded in the other inspections by the second inspector. The results indicate that in general, serving establishments, particularly institutional kitchens, are well maintained: the number of notices and coercive measures was low. The majority of notices and coercive measures concerned the restaurant business (64%) (Table 33).

The overall Oiva rating of excellent or good (A or B) was awarded to 87% and the rating of requires improvement or poor (C or D) to 13% of the serving establishments (Table 35). In the case of serving establishments, hardly any poor ratings were given (0.6%). The results were similar to those obtained in retail sites. A closer look at serving establishments reveals that, regardless of the type of operations, industrial catering sites are all at the same level of quality and achieved better Oiva results than other operations. About 94% of the Oiva results of industrial catering sites were excellent or good, and about 6% required improvement or were poor.

**Table 34.** The inspection-specific Oiva results of food serving operations in 2017

	<b>Inspections</b>	<b>Results</b>			
	Planned inspections, incl. follow-up inspections	Inspection-specific results			
	number	A, %	B, %	C, %	D, %
<b>Food service, totals</b>	16,067	45	41.9	12.5	0.6
- grill and fast food business	1,101	43.7	39.7	16.1	0.6
- cafeteria business	1,930	46.0	42.7	11.0	0.3
- pub business	221	49.5	42.9	6.6	1.0
- restaurant business	6,746	32.6	48.0	18.5	0.9
<b>Institutional catering</b>					
- central kitchen	1,687	58.7	34.4	6.4	0.4
- institutional kitchen	2,556	59.5	34.8	5.6	0.2
- kitchens that prepare precooked food products for service	1,828	56.9	36.9	5.9	0.2



**Figure 30.** The requires improvement and poor ratings (number and %) concerning the requirements imposed on serving establishments; n = the number of inspections regarding the requirement in question

In serving establishments, the requirements were mostly complied with or the shortcomings detected were minor; over 94% of the item-specific results were excellent or good.

In relative terms, the highest number of shortcomings (requires improvement or poor results) was detected in the item related to the temperature management of food products (1,692 cases, or 4.2%) and the maintenance of the own check control plan (639 ratings requiring improvement or poor, 3.4%). Shortcomings (requires improvement or poor results) in the cleanliness of facilities, equipment and surfaces was detected in 1,092 inspections (2.0%). Shortcomings were also detected in their suitability, adequacy and maintenance in 781 cases (just under 2.4%). Temperature management during service is inspected in the item concerning sales and serving. A total of 510 (4.8%) inspections revealed shortcomings in the temperature management in connection with serving food.

At closer inspection, the shortcomings that concern temperature management are related to the storage temperatures of food products, storage conditions, inadequate protection of food products during storage, times of usage, temperature monitoring and records as well as inadequate cooling and the temperature of food products when served.

### Food control by the Finnish Defence Forces

Based on the risks, control has been increasingly focused on field kitchen services in connection with field practices and vessel kitchen services where shortcomings have been detected and where enhanced control and the instruction of the operators in the skills of the operators (i.e. trainers), implementation of own check control and general sanitation are clearly required.

Targeting control operations has worked well, and it will be continued. Both the flexible and situational assignment of the control resources and the effectiveness of the control must be further developed.

The food control carried out by the Finnish Defence Forces generally followed the control plan for environmental health fairly well (plan implemented to 55.5%, coverage of inspections 43.7%). In 2017, 76 control sites (62%) fulfilled the requirements for the highest two ratings of excellent (A) or good (B).

The majority of the shortcomings detected or notices requiring improvement given in the inspections concerned the need for repair of the structures or shortcomings in the sanitation of facilities and equipment or in the own check controls and records concerning them. Many of the cases concerned issues that had already been scheduled for major renovations.

In the case of field and vessel kitchen services, shortcomings were most commonly detected in own check control records, the implementation of own check controls, food storage temperature management and general hygiene.

In nearly all sites, minor shortcomings were detected in the own check control procedures, such as missing temperature recordings and sampling for monitoring cleanliness not taken according to the procedure described in own check control plans. Shortcomings were also detected in the regular updating and recording of the personnel's knowledge of food product hygiene.

In military restaurants due to be renovated, the lack of space and impracticality of the facilities, worn-out surfaces and equipment hinder hygienic work procedures. In field kitchen services, the skills of instructors directly affected the motivation and work hygiene of catering teams.

## 6. Sales of food products

### 6.1. Products with registered names

The production or marketing of foods within the EU system of protection of names was inspected in 262 sites. The majority of the sites were serving establishments, such as cafeterias and restaurants, but some sites that produce karjalanpiirakka pastries were also subjected to inspection. Of the inspected sites, 85% achieved excellent and 14% good results, whereas one per cent of the inspected sites, i.e. three sites, received a rating of requires improvement. Shortcomings were detected in the use of the name feta in particular (feta turned out to be other cheese), which resulted in 28 ratings being lowered from excellent to good. This was also the case in eight cases of karjalanpiirakka (the ingredients did not correspond to the product specification). The misuse of the name karjalanpiirakka was detected in a few bakeries, but it was more common in the presentation of the products in serving establishments. Three inspections resulted in a rating of requires improvement due to this. However, in these cases the operators had already received a notice of the issue in previous inspections.

Based on the comments received in connection with the control, serving establishments experience difficulties with the protected name of feta in particular. Operators do not know how to name their feta salad, feta pie or feta pizza if they use other cheese in it.

Control requests regarding names registered outside of Finland were received and also sent to the Member States where the names are registered. Finland received a request to check whether Le Gruyere cheese is produced and packed in Finland. According to the inspection carried out by a local inspector, the suspicion was unfounded. Finland submitted a notification to Italy regarding a suspected breach of the protection of

names in the case of Parmigiano Reggiano cheese that did not have the logo informing of the registered name on the package. The notification resulted in the withdrawal of the product from the market at least in Italy.

## 6.2. Requirements for the sales of vegetables

The conformity to the requirements for the sale of vegetables was inspected in five packing centre inspections that targeted a total of 26 product lots. A total of 25 inspections were carried out at wholesale operators, with a total of 162 fruit and vegetable lot inspections. 20 inspections were conducted in retail shops to check a total of 872 fruit and vegetable lots.

The highest number of inspections concerned tomatoes, apples, bell peppers, grapes, pears and salads. In relative terms, the highest number of defects leading to non-conformity were found in nectarines (29%), oranges (22%), strawberries (22%) and pears (10%). The most frequently inspected product lots were reported to originate in Spain, followed by Finland, Italy and the Netherlands. In relative terms, the highest percentage (89%) of lots not in conformity with the standards originated from a country that was not reported, which means that the labelling error, i.e. the lack of the information of the country of origin, caused the non-conformity. The following most common countries of origin of non-conforming lots were Belgium (50%), South Africa (11%), Greece (10%), Poland (6%) and Finland (5%). The most common cause for non-conformity was a labelling error (25 batches). Other common causes leading to non-conformity were deterioration (19 lots) and bruising (18 lots).

The number of inspections and inspected lots in packaging facilities and at wholesale operators remained at the same level as in the previous year. The number of inspections and inspected lots in retail shops decreased by over 50%. The most frequently inspected products and the main errors that caused non-compliance remained unchanged. In 2017, the most frequently inspected products originated in Spain. Finnish products were the second most frequently inspected ones. This is due to the fact that a large proportion of the inspections were conducted towards the end of the year, when the amount of Finnish produce on sale is already lower and a large proportion of fresh produce is imported from Spain.

## 6.3. Requirements for the sales of eggs

### Production sites

The inspections of production sites will be focused to all new poultry farms producing free-range and barn eggs, as well as poultry farms in which changes have been made after the latest inspection. In 2017, six inspections were conducted (Table 36). Five of the inspections were conducted to measure new barns for the approval of the poultry farms for the production of barn eggs before their commissioning. One of the inspections conducted in 2017 was the inspection of a new free-range poultry farm for the production of free-range eggs. The free-range poultry farm has previously produced barn eggs.

Table 35. Inspections conducted in egg production farms

Inspected sites	Inspections number			Evira-registered poultry farms that produce barn eggs, total		
	2015	2016	2017	2015	2016	2017
Poultry farms that produce barn eggs	4	10	5	183	186	187
Free-range poultry farms	0	6	1	3	10	10



**Table 36.** Inspections conducted in egg production farms

Reason for inspection	Inspections number		
	2015	2016	2017
New poultry farms that produce barn eggs	3	10	5
New free-range poultry farms	2	6	1
Inspections of requirements in existing free-range/barn poultry farms	1	0	0

Shortcomings were not detected in the inspected poultry farms. The inspections are approval inspections for the barn or free-range egg production systems required for the sale of eggs according to the legislation. There is no advance information regarding new poultry farms or changes in the type of production in existing poultry farms, thus the number of inspections cannot be influenced in advance.

### **Egg packing centres**

In 2017, there were 70 egg packing centres in Finland. A total of 96 inspections were conducted in them to evaluate compliance with the requirements for sale. Out of the inspections, 32 targeted the quality and weight grading, 33 the stamping and labelling of eggs, and 31 the records the egg packing centres keep regarding the eggs.

87.5% (84 cases) of the inspections of the compliance with the requirements for sale resulted in an A rating (excellent) in egg packing centres. A good, i.e. B rating was awarded in 8.3% (8) inspections and 4.2% (4) inspections led to a rating of requires improvement, i.e. C. A poor rating (D) was not given in any of the inspections.

The distribution of the ratings of the requirements in the inspections of the compliance with the requirements for sale in an egg packaging centre was as follows: In the case of the quality and weight grading of eggs, 96.9% of the inspections resulted in an excellent or good (A or B, respectively) rating. In the case of the stamping and labelling of eggs, 93.9% of the inspections resulted in an excellent or good (A or B, respectively) rating. 96.8% of the inspections concerning the records that the egg packing centres keep regarding the eggs resulted in an excellent or good (A or B, respectively) rating. None of the inspections of the compliance with the requirements for sale in egg packing centres resulted in a poor (D) rating. The highest number of shortcomings in the inspections of the compliance with the requirements for sale in egg packing centres in 2017 was detected in the stamping and labelling of eggs. A rating of C requiring improvement was given in 6.0% of the inspections of stamping and labelling. The inspections of the quality and weight grading of eggs and records that the egg packing centres keep regarding eggs resulted in a rating of C requiring improvement in 3.0% of the inspections.

The quality grading of eggs had not been performed according to the own check control plan of the egg packing centre. However, the quality issues detected in the quality grading inspections were within the tolerances allowed. Errors were detected in stamping and labelling. In the records that the egg packing centres keep regarding eggs, irregularities were detected in the information regarding egg lots and in the shelf life recorded in consignment notes.

**Table 37.** Inspection-specific results of the compliance of the requirements for sale in egg packing centres

Control of the compliance with the requirements for sale in egg packing centres	Inspections	Results			
	Planned inspections, incl. follow-up inspections	Inspection-specific results			
	number	A, %	B, %	C, %	D, %
Quality and weight grading of eggs	32	88.0	9.0	3.0	0
Stamping and labelling of eggs	33	85.0	9.0	6.0	0
Records that the egg packing centres keep regarding eggs	31	90.0	6.0	3.0	0

#### 6.4. Marketing of food products

The municipal food control authorities received 61 control requests due to the use of non-compliant health and medicinal claims reported to or detected by Evira. 40 of these were connected to the initiative on controlling distance sales coordinated by the Commission (CCPeFOOD). In the control requests, Evira requested the municipal food control authority to contact the operator, offer instruction in the correct use of claims and advise the operator to follow the requirements set out in the legislation and to remove any non-compliant claims.

Evira also submitted a notice to five operators requesting them to modify their marketing by removing any non-compliant claims. In addition, Evira heard four of them regarding the prohibition of marketing and imposing a conditional fine. One operator was prohibited from renewing their non-compliant marketing with a conditional fine that was imposed to back up the prohibition.

#### 6.5. Initiative for controlling the origin of vegetables in 2017

The objective of the national initiative for controlling the origin of vegetables was to support control units in controlling the origin of vegetables, to develop the cross-border exchange of information and collaboration between control units, and to increase the efficacy of control actions. The objective was to use the initiative for harmonising the manner of interpreting the rules through training and the production of uniform guidelines for control authorities. The project team that decided on the content and focus areas of the initiative included representatives from two Regional State Administrative Agencies, two control units, Customs and Evira.

The initiative for controlling the origin of vegetables was coordinated by Evira and implemented in the summer of 2017. A total of 38 municipal food control units (61% of the control units) located in the areas of five different Regional State Administrative Agencies participated in the initiative, and a total of 283 inspections were conducted within the framework of the control initiative. 240 different operators and a total of 702 vegetable lots were subjected to inspections. By far the most common sites to inspect were movable sites and market sites. Slightly over a third of the inspected product batches were strawberries, with batches of peas and early potatoes being the following two most frequently controlled batches.

The results were evaluated using the Oiva scale. The results of the Oiva items concerning General labelling (item 13.1) and Traceability of foodstuffs (item 16.1) are presented in Figures 31 and 32.

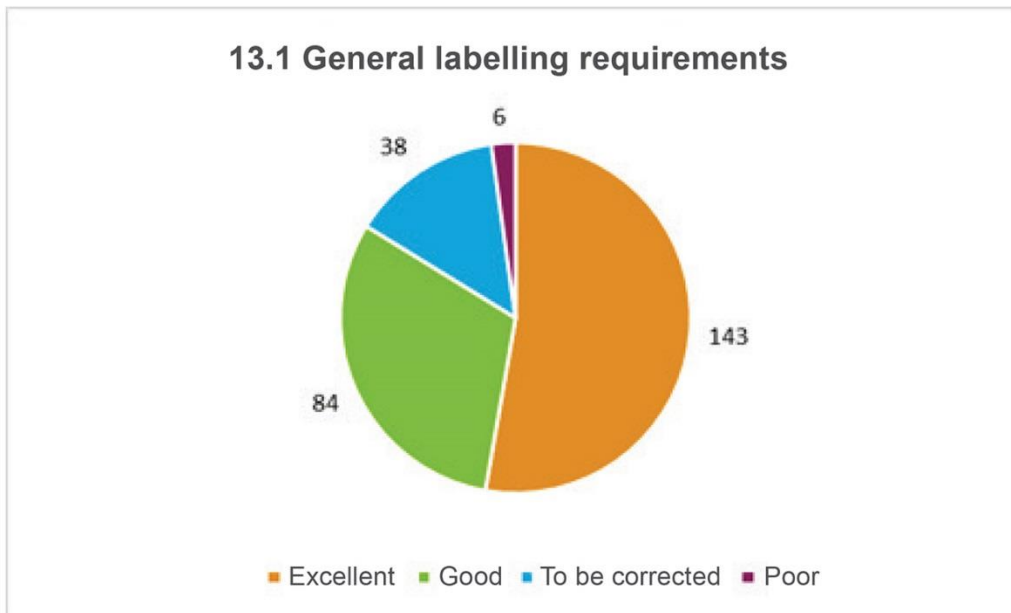


Figure 31. The distribution of the Oiva results concerning general labelling

The Oiva results concerning general labelling were distributed as follows: excellent, 53%, good, 31%, requires improvement, 14% and poor, 2%. The number next to each result indicates the number of evaluations carried out.

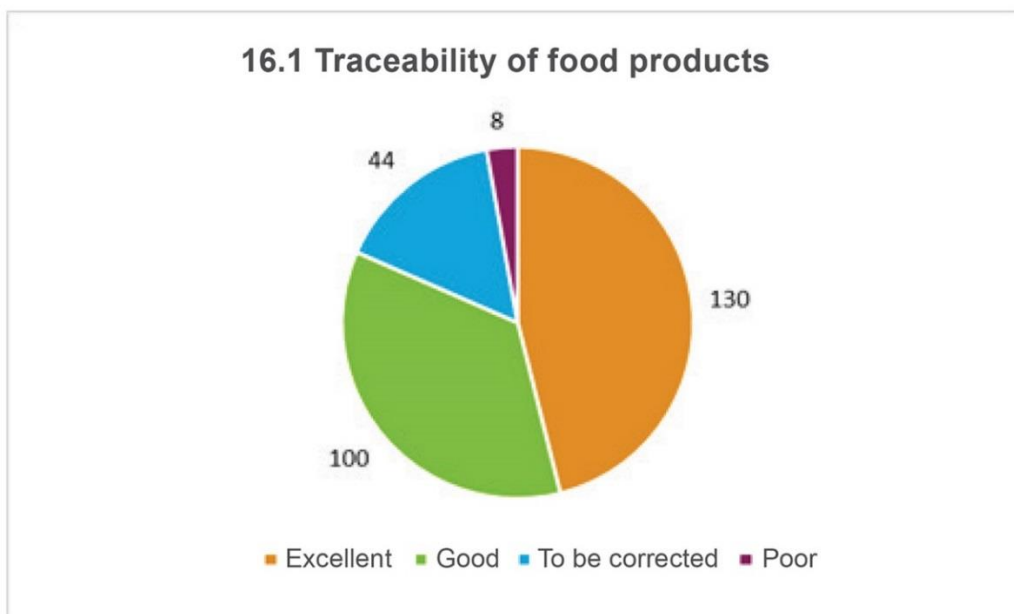


Figure 32. The distribution of the Oiva results concerning the traceability of foodstuffs

The Oiva results concerning the traceability of foodstuffs were distributed as follows: excellent, 46%, good, 35%, requires improvement, 16% and poor, 3%. The number next to each result indicates the number of evaluations carried out.

The results show that the knowledge of using a batch identifier, required labelling and issues related to the realisation of traceability among the operators in the fresh vegetable sector is inadequate, and further information is needed. Some of the operators in primary production had omitted some essential information on the packaging of vegetables or the documentation regarding the batch. Room for improvement was also detected in the skills that suppliers and retailers have in the reception inspections of vegetable products. This concerns the inspections of the correspondence of labelling and documentation in particular.

The inspections revealed a total of 23 operators (10% of those inspected) that had not submitted an appropriate notification of their operations to food control authorities or whose notification status remained unclear.

The initiative increased the collaboration between control authorities and helped unify the manner of interpretation within control units and between them. Control authorities received further information and practice, which enhanced the skills within the control of origin.

A small group of representatives of Evira and Customs planned the role that Customs had in the initiative. Customs carried out their tasks in the control process independently. According to the plan, Customs reported any vegetable lots with inadequate labelling or information that it detected to Evira. When necessary, Evira reported the possible arrival of vegetable lots to the responsible control units at the indicated destination.

## 7. Microbiological monitoring programmes

### 7.1. Salmonella in food products

The national salmonella monitoring programme has been included in the own check control programmes of slaughterhouses, low-capacity slaughterhouses and cutting plants. The own check salmonella control was inspected in a total of 48 sites, eight of which had slight shortcomings in their own checks (rating of B, good). In three sites, repeated issues were detected in the sampling plan and, as a consequence, sample collection (rating of C, requires improvement). All shortcomings concerned sampling in cutting plants. Follow-up controls were carried out in two sites, one of which required administrative coercive measures. The follow-up inspection of a third establishment was not conducted in 2017.

In 2017, samples for the national salmonella monitoring programme were taken in pig and cattle slaughterhouses according to the number of samples required in the sampling plan drafted by Evira (Table 38). In accordance with the Decree, the required number of samples in low-capacity slaughterhouses and broiler, turkey and chicken slaughterhouses, cutting plants, establishments that produce minced meat and establishments that produce meat preparations (Tables 38 to 41) depends on the production volumes.

The national salmonella monitoring programme has been effective and the salmonella status of Finnish meat and eggs has remained good. The number of samples from slaughterhouses and meat sector establishments that contained salmonella remained clearly under the national goal of 1%.

The results of the national salmonella control programme were reported to the EU in the annual report on zoonoses.

**Table 38.** Samples taken in red meat slaughterhouses and low-capacity slaughterhouses according to the salmonella control programme in 2017

Sample type	Required in the Decree	Actual number of samples number	Positive samples number	Positive samples %
<b>Lymph node samples</b>				
Slaughter pig	3,000	3,209	0	0
Sow <sup>1</sup>	3,000	3,210	3 <sup>2</sup>	0.09
Cattle	3,000	3,202	2	0.06
<b>Surface swab samples from carcasses</b>				
Slaughter pig	3,000	3,213	0	0
Sow <sup>1</sup>	3,000	3,190	0	0
Cattle	3,000	3,174	0	0

<sup>1</sup> Regulation of the Ministry of Agriculture and Forestry 134/2012, the sample type also includes boars

<sup>2</sup> One of the samples was taken in December 2016, but is reported in 2017

**Table 39.** Neck skin samples taken from carcasses in broiler, turkey and chicken slaughterhouses in 2017

Animal species	Samples number	Positive samples number	Positive samples %
Broiler	1,189	0	0
Turkey	332	0	0
Chicken	30	0	0

**Table 40.** Meat samples taken in cutting plants in 2017

Animal species	Samples number	Positive samples number	Positive samples %
<b>Finnish meat</b>			
Slaughter pig	1,065	0	0
Sow	127	0	0
Cattle	1,669	0	0
Broiler	16	0	0
Turkey	60	0	0
Chicken	0	0	0
Duck	0	0	0
Goose	1	0	0
Guinea fowl	0	0	0
<b>Imported meat</b>			
Slaughter pig	77	0	0
Sow	0	0	0
Cattle	86	0	0
Broiler	0	0	0
Turkey	4	0	0
Chicken	0	0	0
Duck	0	0	0
Goose	0	0	0
Guinea fowl	0	0	0

**Table 41.** Sampling in establishments that produce minced poultry and raw poultry meat preparations in 2017

Finnish meat	Samples number	Positive samples number	Positive samples %
Broiler	1,014	0	0
Turkey	154	0	0
Chicken	0	0	0

The compliance with the sampling requirements of the control programme regarding samples from live animals is reported in the Control of animal health (Eläinten terveyden valvonta) report.

## 7.2. Salmonella in feed

National legislation requires that there are no salmonella bacteria in feed. The presence of salmonella in feed is controlled in both official and own check control of the operators in the sector. In executing official control, Evira takes samples of feed produced in Finland and imported high-risk feeds, and controls the implementation of the own check control of the operators. In addition, animal-by-product feed for pets is sampled in connection with market control inspections. If necessary, feed samples will also be taken to identify the source of salmonella infections in animal holdings. Feed sector operators have a statutory duty to carry out own check control for salmonella that concerns the production and import, as well as production facilities, storage and transportation.

The total number of salmonella analyses conducted within official control in 2017 was 5,155; out of the analyses, 2,922 focused on imported feed, 812 on internal market control, 403 on market control and 783 on Finnish production. 227 samples were taken in connection with the control of primary production. Salmonella analyses were mostly conducted in connection with the import of feed materials. Of all of the salmonella analyses, the percentage of salmonella analyses on feed materials was 92.5% (92.5% in 2016 and 91.5% in 2015).

In connection with the import of feed, 16 batches positive for salmonella were detected either in official control or as a result of own check controls (18 in 2016, 5 in 2015). The number of contaminated batches was higher than usual, as was the case in the previous year. The operators applied for permission for the treatment of the imported batches found to be positive for salmonella at Evira. After the treatment, official samples were taken of the batches; they were found to be clean and approved for use. New treatment agents were taken into use, which resulted in the need for treating some of the batches several times. One batch of organic rapeseed cake was returned to its country of origin. The batches that were positive for salmonella accounted for 37.1 million kilograms of feed materials (35.6 million kg in 2016, 10.3 million kg in 2015).

Salmonella was found in one batch of feed material produced in Finland for food-producing animal species. The whole batch was treated with chemicals, after which it was found to be clean. Salmonella was not found in feed samples taken to identify the source of salmonella infections in animal holdings. Salmonella was not detected in samples taken from feed produced from Finnish animal-by-products intended for fur animals. In market surveillance, one case of salmonella was detected in raw frozen food for dogs.

In connection with their own check control samples taken in a factory environment, feed sector operators reported 39 salmonella findings to Evira. Salmonella was not found in mixed feed produced in Finland for food-producing animal species in the own check control of the operators, either.

Feed control report 2017 (in Finnish): <https://www.evira.fi/tietoa-evirasta/esittely/toiminta/valvonta/arviointi-ja-raportit/sektorikohtaiset-valvontaraportit-2017/>

### 7.3. Campylobacter control programme in broiler chicken

During the period from the beginning of June to the end of October, all slaughter batches of broiler chicken are tested for Campylobacter. In other months, the target is based on a calculation that accounts for the rate of prevalence of Campylobacter in the country. Whether the targets set out in the programme are met is evaluated based on the numbers of tests carried out, submitted by laboratories.

The Campylobacter control programme is included in the own check control programmes of broiler slaughterhouses. The sampling conducted in each broiler slaughterhouse is inspected by official veterinarians. In 2017, the own check control for Campylobacter was inspected in all poultry slaughterhouses; four slaughterhouses were rated excellent (A) and one was rated good (B).

Table 42 shows the number of Campylobacter samples taken as a part of the own check control and positive results in broiler slaughterhouses in 2017. The test results obtained in 2017 indicate that the incidence of Campylobacter in broilers has remained low as in previous years. Figure 33 indicates the percentage of slaughter batches that were positive for Campylobacters in the total number of inspected slaughter batches during the year in 2012–2017. The results were reported to the EU in the annual report on zoonoses.

**Table 42.** The number of Campylobacter samples taken in own check controls and positive results in broiler slaughterhouses in 2017

Year	Period	Tested slaughter batches, target number	Tested slaughter batches, actual number	Positive slaughter batches number	Percentage of positive slaughter batches %
2017	1.1.–31.5. and 1.11.–31.12.	329	338	1	0.3
	1.6.–30.10.	All	1,630	29	1.8
	Entire year	-	1,968	30	1.5

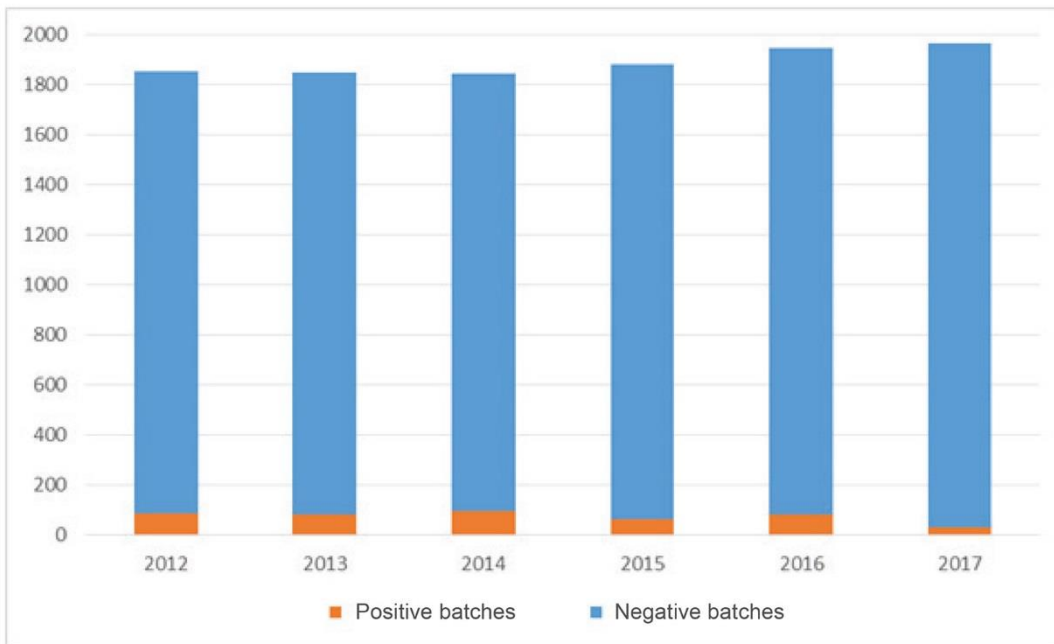


Figure 33. Test results of slaughter batches of broiler (number of batches) in 2012–2017

#### 7.4. EHEC control in cattle

EHEC tests are included in the own check control programmes of cattle slaughterhouses. The slaughterhouse-specific number of samples is determined in the sampling plan drafted by Evira. The own check control for EHEC in cattle slaughterhouses and low-capacity slaughterhouses was inspected in 11 sites in 2017. All the inspected sites were rated excellent (A) or good (B). Minor shortcomings concerned sample collection from animals from the same holding, resulting in sampling not being random.

Table 43 shows the number of tested EHEC own check control samples from cattle slaughterhouses and positive results in 2013–2017. In addition, the table indicates the number and results of cattle holdings tested in connection with the investigation of EHEC infections in humans in 2013–2017. Both faeces samples and environmental samples were tested in the holdings. In 2017, four of the cattle holdings inspected due to infections in humans were positive.

In cattle slaughterhouses, the EHEC control programme was implemented well, and the percentage of faeces samples positive for EHEC was 1.44% of the actual number of samples taken. The estimate of the implementation is based on the comparison of the target defined in the programme and the number of samples taken submitted by the official veterinarians of cattle slaughterhouses. In the low-capacity slaughterhouses, the EHEC sampling targets were not completely met according to the requirements of the control programme.



**Table 43.** Own check control samples for EHEC tested in cattle slaughterhouses and cattle holdings inspected as a result of infections in humans in 2013–2017

Year	Sample type	Target number of samples number	Actual number of samples number	Positive samples number	Percentage of positive samples %
2017	Slaughterhouse, faecal sample	620	625	9	1.44
	Cattle holdings inspected as a result of infections in humans		5 holdings	4 holdings	
2016	Slaughterhouse, faecal sample	618	627	13	2.07
	Cattle holdings inspected as a result of infections in humans		5 holdings	1 holding	
2015	Slaughterhouse, faecal sample	616	625	17	2.72
	Holdings inspected as a result of infections in humans		4 holdings	1 holding	
2014	Slaughterhouse, faecal sample	1,522	1,545	40	2.59
	Holdings inspected as a result of infections in humans		6 holdings	2 holdings	
2013	Slaughterhouse, faecal sample	1,522	1,560	32	2.05
	Holdings inspected as a result of infections in humans		8 holdings	4 holdings	

In the amendment of the regulation in January 2015, the required number of faecal samples taken from slaughter cattle was reduced to an annual minimum of 600 samples for EHEC tests in the whole country. The target for tests in low-capacity slaughterhouses did not change.

The results of the control programme were reported to the EU in the annual report on zoonoses.

### 7.5. Recognition as and examinations for *Trichinella* in controlled housing conditions for pigs

The official recognition of the controlled housing conditions for pigs allows the reduction of the number of examinations for *Trichinella* in connection with the meat inspections for pigs. In the officially recognised controlled housing conditions, pigs are protected from *Trichinella* infections during their whole life; thus, they do not need to be examined after slaughtering. The pigs bred in establishments officially recognised as applying controlled housing conditions are exempt of the examination for *Trichinella* following an order from Evira. Evira recognises controlled housing conditions for pigs according to applications. The recognition can apply to a single holding or a group of holdings, i.e. compartments. In 2017, there was one pig holding in Finland that Evira had recognised as having controlled housing conditions. In practice this means that slightly under 700 slaughtered pigs were exempt of the examination for *Trichinella* in 2017. All the other pigs slaughtered in Finland were tested for *Trichinella* in connection with meat inspection. The number of these tests was about 1.9 million, all of which were negative.

## 7.6. Antimicrobial resistance monitoring programme

Antimicrobial resistance is monitored annually within the framework of the FINRES-Vet monitoring programme, which is based on the Implementing Decision 2013/652/EU and monitoring subjects selected on a national level.

The zoonotic bacteria included in the programme are salmonella and campylobacters. In 2017, the antimicrobial resistance of the salmonella bacteria isolated from cattle, pigs and poultry was monitored within the framework of the salmonella monitoring programme. In addition, the *Campylobacter jejuni* strains isolated from broiler chicken and *Campylobacter coli* strains isolated from pigs were included in the resistance monitoring programme. Resistance is not commonly found in salmonella strains annually, and in 2017, resistance was found in only two strains. In campylobacters isolated from pigs in 2017, resistance was moderate against to the antimicrobials that belong to the class of quinolones (16–17%), which was at the same level as in the previous monitoring period in 2013. Resistance was not found in campylobacters isolated from broiler chicken.

In 2017, the prevalence of *E. coli* bacteria that produce ESBL, AmpC and carbapenemases was also monitored in pigs and in fresh, retailed pork and beef. In pigs, the prevalence of ESBL/AmpC-producing *E. coli* was 3% (n=299). ESBL-*E. coli* was found in 0.3% of the samples and AmpC-*E. coli* in 2.3%. In fresh pork (n=302) and beef (n=301), these bacteria were not found at all.

The prevalence of MRSA bacteria in slaughtered pigs was monitored from September 2016 to September 2017. The prevalence of MRSA in inspected slaughter batches (n=61) was 77%. The prevalence of MRSA in fresh, retailed pork meat was 6% (n=220) in 2017.

## 8. Chemical food safety

### 8.1. Prohibited substances, medicine residues and contaminants in food of animal origin

The annual national residue control programme that concerns live animals and food of animal origin is required in both national and EU legislation (Council Directive 96/23/EC). The goal is to make sure that prohibited substances are not used in breeding animals for farming purposes and that food products do not contain residues of approved veterinary drugs in levels that exceed the maximum residue limits determined in the applicable legislation. The rate of incidence and levels of contaminants (e.g. heavy metals, pesticides and mycotoxins) from the environment in food products are also monitored in the programme.

In 2017, the residue control programme was carried out almost as planned. Only samples from wild game (elk) were not tested. Nearly 45,000 tests were run on a total of 4,218 samples. The implementation of the so-called multi-residue method led to a more detailed method of calculating the results in comparison to the results obtained in 2015. Table 44 indicates the numbers of samples based on production numbers categorised according to animal species or food products, the distribution of tests between substance categories and the number of non-compliant samples in 2017. Samples that contain residues of approved drugs or other substances in levels that exceed the threshold values or reference points for action, as well as cases in which it can be demonstrated that animals have been treated medically against the regulations or

given prohibited substances are reported as non-compliant. Any non-compliance always results in official inspections of the cases.

**Table 44.** The number of samples tested within the residue control programme for food of animal origin categorised according to animal species or food products for tests (number) in different substance categories and the number of non-compliant samples in 2017

Animal category or food of animal origin	Prohibited substances	Approved veterinary drugs	Contaminants	Samples (total)	Non-compliant samples (number and detected residues)
Bovine animals	413	346	120	1,232	
Pigs	474	758	179	1,427	
Poultry	334	274	41	649	
Sheep	12	35	9	47	
Horses	35	20	2	52	
Elk	0	0	0	0	
Farmed game	5	74	32	111	5 samples: liver/cadmium 4 samples: kidney/cadmium
Dairy	199	289	128	289	
Fish	98	142	83	198	
Egg	140	191	71	201	
Honey	55	55	27	58	semicarbazide oxytetracycline + tetracycline coumaphos

Residues of some prohibited growth promoters for farmed animals or their metabolites may also occur naturally in small concentrations. In addition to the samples presented in Table 44, 2-Thiouracil was found in the urine samples of three bovines, and a small concentration of beta-testosterone in the blood sample of one bovine. A low concentration of beta-estradiol was detected in the blood sample of one pig. Semicarbazide that belongs to banned nitrofurans was detected in one sample of honey. However, the substance may occur in honey naturally as well. Any use of prohibited substances was not detected.

Residues of approved drugs, oxytetracycline and tetracycline, were detected in levels that exceed the reference points for action in one sample of honey.

A low concentration of a pesticide prohibited in Finland, coumaphos, was detected in one sample of honey. It had ended up in the honey due to the use of an imported mite repellent. A large proportion of the liver and kidney samples taken from reindeer that was categorised as farmed game contained cadmium from the environment. Muscle samples were also tested, but elevated concentrations of heavy metals were not detected in them. In one milk sample, aflatoxin M1 was detected in levels that do not exceed the reference points for action. The mould toxin zearalenone or its metabolites were detected in an abnormally high number of urine samples taken from pigs, cattle and sheep (a total of 40 cases).

The implementation and results of the residue control programme in 2017 closely reflected those in previous years (Table 45). The percentage of non-compliant samples is usually between 0 to 0.02% of the tested samples, taking into account any possible residue caused by medical treatment of the animals. When samples that contain contaminants are taken into account, the percentage of non-compliant samples is slightly higher (0.28% in 2017). Nevertheless, the low levels of residue detected in a few samples did not risk food safety.

**Table 45.** Number of samples tested in the residue control programme for food of animal origin, number of non-compliant samples and their percentage of the samples tested in 2010–2017.

Year	Samples (number)	Prohibited substances (number)	Approved veterinary drugs (number)	Contaminants (number)	Percentage of non-compliance/ without contaminants (%)	Percentage of non-compliance/ with contaminants (%)
2010	4,344	0	0	30	0	0.6
2011	4,369	0	1	48	0.02	1.1
2012	4,424	0	1	38	0.02	0.86
2013	4,341	0	0	33	0	0.76
2014	4,324	0	0	17	0	0.4
2015	4,344	1*	0	13	0.02	0.32
2016	4,234	0	0	10	0	0.24
2017	4,218	1	1	10	0.02	0.28

\* any use of prohibited substances was not detected

Any use of prohibited growth promoters has never been detected in Finland. Residues of approved drugs in levels that exceed the maximum residue limit have only been detected in individual cases; in 2017, only one case was detected. The results indicate that food products produced in Finland are safe for consumers and that the regulations that concern the medical treatment of animals, including the withholding periods related to treatments, are complied with to a high degree.

The number of samples that contain contaminants has decreased during the period from 2010 to 2017. The number of samples taken from farmed game has remained the same and, in line with the results obtained in previous years, cadmium was found in a large proportion of the liver and kidney samples taken from reindeer. Since no samples from wild game were taken in 2014–2017, the results do not include test results of visceral samples from elks recorded in previous years. Since it is commonly known that the visceral heavy metal content in game has increased, as a risk management measure Finland does not approve the liver and kidneys of an elk over a year old as a food product. On the other hand, the number of samples that contain mould toxins varies significantly from year to year. Thus, the results can usually not be predicted accurately. In the case of mould toxins in the feed for farmed animals, farmers may in some cases affect the quality of the feed by modifying their practices. Thus, feed should be inspected during the late winter, particularly if there have been problems in the feed silage due to difficult weather conditions or other reasons. Autumn and winter season 2016–2017 was very rainy in Finland, which caused difficulties in the silage of feed grain. This was also evident in the samples that contained mould toxins, the number of which was higher than usual.

The control of prohibited substances and approved veterinary drugs is also a part of the control of cross compliance according to the common agricultural policy of the EU; therefore, non-compliances may also lead to the extension of the control to cover cross compliance and imply possible sanctions that apply to support.

The residue control programme for food of animal origin is implemented according to EU regulations, which means that the possibilities of the Member States to plan the control procedures according to their own risk profile or to make significant year-to-year changes to the monitoring are limited. New test methods will be used in the implementation of the programme, and the methods will continue to be further developed. The new multi-residue methods in particular will open up new possibilities in testing for residues. Agreed changes to the EU rules will change the contents of the programme in the coming years as it is anticipated that the number of contaminant tests will be reduced significantly. Changes to the control systems are also to be expected in connection with the future regional government reform. Within the permitted limits, sampling will still continue to be focused both in terms of time and location to food products or animal species with the highest risk of containing residues.

## 8.2. Pesticide residues

The pesticide residue control programme concerning foodstuffs is implemented annually as required by the EU legislation ((EC) No 396/2005, as amended) and the monitoring regulations of the Commission. The objective of the programme is to monitor that prohibited pesticide residues are not present in food products and that food products do not contain approved substances in levels that exceed the maximum residue levels defined in the legislation. At the same time, the residue control also provides information on the current situation of domestic products, products on the internal market of the EU and imported products. On an annual level, Finland complies with the obligations regarding the number of samples and analyses defined in the control programme of the European Commission. Within the framework of the national part of the control programme, Member States are able to plan controls according to their own risk-based needs.

The pesticide residue control is also a part of the control of cross-compliance according to the Common Agricultural Policy of the EU. If any non-compliance with the regulations that concern pesticide residues is detected in a sample taken from a Finnish food product, the auditors of the Centre for Economic Development, Transport and the Environment will investigate the use of pesticides on farms as instructed by the Finnish Safety and Chemicals Agency Tukes, if necessary. On farms that have applied for agricultural support, the control may also extend to cover the control of cross compliances where necessary.

Authorities collaborate in the control of the use of pesticides and their residues in foodstuffs. The residue control programme is carried out in collaboration between municipal food control authorities (Finnish products), Customs (intra-EU and imported products of other than animal origin) and the National Supervisory Authority for Welfare and Health, Valvira (alcoholic beverages). Evira also controls the pesticide residues in Finnish organic produce and foods of animal origin. The Centres for Economic Development, Transport and the Environment control the use of pesticides as instructed by the Finnish Safety and Chemicals Agency Tukes.

The control plans were generally well carried out, although the number of samples taken by Valvira (alcoholic beverages) and Evira (Finnish organic and regular products of plant origin) did not meet the target. However, the total number of samples taken exceeded the target, mostly due to Customs taking follow-up samples and samples based on the EU Regulation (EC) No 669/2009 on high-risk products that were not included in the planned targets. The actual number of samples compared to the objective of the pesticide residue control plan is shown in Table 46.

**Table 46.** Results of the pesticide residue control (number and % of samples) compared to the plan in 2013–2017

Year	Customs			Evira			City of Helsinki			Valvira		
	Plan	Samples taken	%	Plan	Samples taken	%	Plan	Samples taken	%	Plan	Samples taken	%
2017	1,345	1,535	114	132 <sup>1</sup>	123 <sup>1</sup>	83.4	-	-	-	25	22	88.0
				2 <sup>2</sup>	2 <sup>2</sup>							
				18 <sup>3</sup>	20 <sup>3</sup>							
				238 <sup>4</sup>	222 <sup>4</sup>							
				50 <sup>5</sup>	84 <sup>5</sup>							
				TOTAL	TOTAL							
440	367											
2016	1,500	1,686	112	137 <sup>1</sup>	126 <sup>1</sup>	87.1	80	80	100	25	24	96.0
				10 <sup>2</sup>	8 <sup>2</sup>							
				40 <sup>3</sup>	35 <sup>3</sup>							
				338 <sup>4</sup>	286 <sup>4</sup>							
				18 <sup>5</sup>	18 <sup>5</sup>							
				TOTAL	TOTAL							
543	473											
2015	1,435	1,760	123	202	169	83.7	100	100	100	25	26	104
2014	1,340	2,036	152	239	223	93.3	100	101	101	30	23	76.7
2013	1,550	1,921	124	245	244	99.6	110	110	100	30	20	66.7

<sup>1</sup>vegetables (incl. organic)

<sup>2</sup>baby foods

<sup>3</sup>animal origin

<sup>4</sup>organic vegetables and plant origin

<sup>5</sup>organic animal origin

A total of 2,008 samples were tested in the pesticide residue control. Accounting for the measurement uncertainty, the maximum residue level (MRL) of pesticides determined in the legislation was exceeded in 48 samples (2.4%). Nine samples (1.5%) did not comply with the organic legislation. In the cases of all non-compliant products, the competent food control authorities took the measures determined in the legislation.

The percentage of samples taken from imported (from EU Member States and non-EU countries) products that contained pesticide residues was 45%. Residue was found most frequently in fresh fruit and berries as well as fresh vegetables. 47 product batches (3.4%) turned out to be non-compliant due to levels of one or more pesticides that exceeded the accepted maximum level. In addition, eight batches of organic produce contained residues of substances prohibited in organic production. The delivery of any non-compliant products to the food product chain was stopped and follow-up samples were taken from the following batches before releasing them to the market. Non-compliant batches were destroyed or returned to the countries of origin under the supervision of the authorities.

Recall measures that applied to consumers were taken in the cases of the batches that had reached the market and were assessed to pose a risk to consumers (acute reference dose, ARfD, was exceeded). The

products concerned were yellow passion fruit from Ecuador and green chili from Pakistan. Based on the risk assessment, an RASFF report to other EU Member States was submitted in connection with twelve (12) non-compliant batches. In 56 batches, the residue level was at MRL level or only exceeded it slightly, which only resulted in a notice to the holder of goods. The highest number of cases of non-compliance was detected in Turkish pomegranate (4 cases) and Indian rice (5 cases). 39 of the non-compliant batches were food products produced in non-EU countries and eight batches contained food products that originated in EU Member States. This indicates that not all non-EU countries are able to comply with farming practices that respect the MRL requirements of the EU. On the other hand, product batches imported via another EU Member State that originate in third countries are also included in the statistics for intra-EU imports, meaning that the non-compliances are even more frequently related to third countries than these figures indicate. For instance, all of the four non-compliant batches of pomegranate that originated in Turkey were sampled as intra-EU market samples; thus, they had been imported into the EU via another Member State.

In the 453 samples taken from Finnish products, residues that did not exceed the MRL level were found in 35 samples (7.7%). Among Finnish food products, one sample of lettuce (0.2%) was non-compliant with the Finnish Food Act. In addition, in one sample of organic seed crisp breads, residues of pesticides were detected that are prohibited in organic products. However, the levels did not exceed the MRL values determined in the food legislation. Four Finnish vegetables contained residues of the active substances of a pesticide (imidacloprid) that is not approved for the plants in question in Finland. The products were two lettuces, arugula and mint, produced by the same producer. The cases were transferred to the Finnish Safety and Chemicals Agency Tukes, and the Centres for Economic Development, Transport and the Environment investigated the use of plant protectants on the farm. The inspection revealed multiple breaches of the obligations regarding the use of pesticides on the farm.

Tables 47 and 48 show the percentage (%) of samples not compliant with the Food Act in 2013–2017 and the percentage of non-compliant samples among all samples tested in 2017.

**Table 47.** Percentage (%) of non-compliant samples in 2013–2017

<b>Year</b>	<b>Samples number</b>	<b>Non-compliant number</b>	<b>Non-compliant %</b>
<b>2017</b>	2,008	57	2.8
<b>2016</b>	2,263	28	1.2
<b>2015</b>	2,088	35	1.7
<b>2014</b>	2,383	49	2.1
<b>2013</b>	2,240	63	2.8

**Table 48.** Percentage of samples in pesticide residue control programme not compliant with the Food Act among all samples tested in 2017

Origin	Customs			Evira			Valvira		
	samples tested number	residue findings number	non-compliant number	samples tested number	residue findings number	non-compliant number	samples tested number	residue findings number	non-compliant number
Finnish	0	0	0	451	36	2	2	0	0
Products from EU Member States	987	408	8	0	0	0	16	8	0
Products from third countries	548	227	39	0	0	0	4	2	0
<b>Total</b>	1,535	635	48	451	36	2	22	10	0

In addition to the monitoring programme coordinated by Evira, municipal food control authorities conducted a total of 22 inspections that focused on pesticide residues within the framework of the Oiva system. The sites to be monitored for pesticide residues in the Oiva system are selected based on the risk according to the influence and scope. All of the Oiva inspections carried out in 2017 resulted in A ratings, i.e. shortcomings were not detected (Table 50). Since the Oiva system was extended to cover all food control sites only in phases during 2015, a more detailed analysis of the number and results of inspections is only possible when the Oiva system has covered all food control sites for three years.

**Table 49.** Pesticide residue control and its results as a part of the Oiva system implemented by the municipal food control authorities in 2015–2017

Year	Inspections number	A %	B %	C %	D %	Guidance and instruction number	Notices number	Coercive measures number
2017	22	100	-	-	-	-	-	-
2016	44	95	5	-	-	2	-	-
2015	25	96	4	-	-	1	-	-

The Oiva system further harmonises the pesticide residue control and makes it more regular on a national level. In addition, the Oiva system simplifies reporting and supports the detection of any systematic irregularities.

### 8.3. Contaminants

The official controls on food contaminants are implemented as required by the EU legislation ((EC) No 1881/2006, as amended) and the monitoring recommendations of the Commission. The objective of the control is to monitor that the levels of harmful contaminants do not exceed the maximum levels set in the legislation and/or the levels considered safe, while also providing information regarding the current national status. The contents of food contaminant control is not strictly set in the EU legislation. Consequently, Member States can plan the control fairly freely according to their own risk-based needs.



The analyses coordinated by Evira mostly concentrate on mapping the current situation at the national level and on providing data for legislative purposes. In general, the control plan for 2017 regarding the analyses coordinated by Evira was followed closely (Table 50). Matrices analyzed in 2017 included salads, broiler meat, fatty acid preparations, rye, potato preparations, bakery products, coffee, baby food and breakfast cereals.

**Table 50.** Planned number of samples for food contaminants and the actual number of samples (%) in 2012–2017 (control and mapping analyses coordinated by Evira)

Year	Contaminants									
	POPs	Nitrate	PAH	Acrylamide	Heavy metals	Mycotoxins	Coumarin	Radioactive substances	Perchlorate	Erucic acid
2017	10/100%	12/120%	34/85%	40/100%	34/85%	8/80%	-	-	-	34/85%
2016	10/100%	10/100%	30/100%	-	118/97%	20/75%	-	-	-	-
2015	-	15/67%	10/120%	-	-	71/82%	-	-	50/100%	-
2014	40/90%	11/92%	-	46/93%	46/93%	44/95%	-	60/100%	-	-
2013	40/90%	32/78%	-	32/44%	46/93%	34/94%	30/100%	-	-	-
2012	40/100%	38/76%	225/74%	32/0%	50/100%	20/80%	14/100%	-	-	-

Within the control and mapping analyses coordinated by Evira, 132 samples were tested and 362 analyses were conducted for compounds subject to a maximum level set in the legislation (dioxins, dioxin-like PCBs, indicator PCBs, nitrate, ergot sclerotia and mycotoxins [DON, zearalenone, fumonisins, ochratoxin A], PAHs, erucic acid). Four samples were non-compliant (Table 51). 1,151 analyses were conducted for compounds that are not yet subject to a maximum level (such as ergot alkaloids, perfluorinated compounds, brominated flame retardants, acrylamide, certain heavy metals) set in the legislation. The levels of these compounds in food products were mainly very low, and therefore the results did not provide cause for control measures. Based on one acrylamide result, the local food control authorities were requested to instruct the manufacturer on issues related to acrylamide and to inform them of the regulation entering into force on 11 April 2018 and the requirements it contains.

**Table 51.** The number of samples tested in the control and mapping analyses of food contaminants (coordinated by Evira), the percentage of non-compliant products (%) and the number of individual analyses in 2012–2017

Year	Samples tested number	Percentage of non-compliance %	Analyses for compounds subject to maximum level set in the legislation number	Analyses for compounds without maximum levels set in the legislation number
2017	172	2**	362	1,151
2016	179	1*	130	1,771
2015	80	0	133	834
2014	149	0	257	3,351
2013	99	0	197	2,921
2012	316	2	277	4,056

\* In two raw grain samples, the maximum level set for ergot sclerotia in the legislation was exceeded. The maximum level of ergot sclerotia is applied to untreated grain brought to market for first processing. First processing refers to any physical or thermal treatment of the grain, excluding drying. Therefore, the application of the maximum level in the cereal chain is appropriate in the reception of the grain after the primary treatment. In these two cases, the collection of samples by authorities was focused on primary production, which is why the municipal food control authorities took appropriate control measures. This included making sure that the buyer of grain received information on the excessive level of ergot sclerotia in the raw cereal. This enabled the buyer to take the necessary risk-management measures and to ensure on their part that food products brought to market do not contain it in levels that exceed the maximum level.

\*\* In three raw grain samples, the maximum level set for ergot sclerotia in the legislation was exceeded. In one rucola sample, the maximum level set for nitrate in the legislation was exceeded.

Municipal food control authorities conducted a total of 130 inspections related to food contaminants within the framework of the Oiva system. The distribution of the results of the inspections is shown in Table 52. The Oiva results indicate that shortcomings (C or D rating) in the management of contaminants were detected in four of the inspected sites. The detected shortcomings were related to the fact that the operators in the food sector had not ensured (using chemical analyses and/or specifications) the compliance of their products in terms of PAHs, mycotoxins or other contaminants.

**Table 52.** Control of food contaminants and its results as a part of the Oiva system implemented by the municipal food control authorities in 2015–2017

Issue to be inspected	Year	Inspections	A	B	C	D	Guidance and instruction	Notices	Coercive measures
		number	%	%	%	%	number	number	number
17.13 Contaminants from the environment	2017	21	81	19	-	-	4	-	-
	2016	23	91.3	8.7	-	-	1	-	-
	2015	18	88.9	11.1	-	-	2	-	-
17.14 Mould toxins	2017	22	95	-	5	-	-	1	-
	2016	28	100	-	-	-	-	-	-
	2015	21	100	-	-	-	-	-	-
17.15 Contaminants formed in the process	2017	62	81	16	3	-	10	2	-
	2016	62	82.3	14.5	1.6	1.6	8	2	1
	2015	32	68.8	31.3	-	-	10	2	-
17.16 Other contaminants	2017	25	96	-	4	-	-	1	-
	2016	26	96.2	3.8	-	-	1	-	-
	2015	7	85.7	14.3	-	-	1	-	-

The Oiva system has further harmonised the control of food contaminants and makes it more regular at a national level. In addition, the inclusion of all food premises into the Oiva system simplifies the reporting and supports the detection of any systematic shortcomings.

#### 8.4. Harmful and prohibited substances in feed

Feed control covers the whole operating chain from the primary production of feed to production, import, export, marketing, storage, transportation and use in the farms. The results of the feed sample controls indicate that feed produced and marketed in Finland mostly continues to fulfil the statutory requirements for the safety and quality of feed according to the Feed Act.

The number of samples taken within the scope of official feed control followed the control plan in 2017. The number of analyses for harmful and prohibited chemical substances conducted within the official feed control was 5,276, which is 122% of the planned number of analyses. In the case of official samples, the number of feed samples for the control of mycotoxin and heavy metal concentrations and residues of coccidiostats, drugs and other compounds exceeded the planned number of samples, which increased the number of analyses conducted.

In the feed control for harmful and prohibited chemical substances, shortcomings regarding the concentrations of heavy metals, melamine, dioxins and pesticides were not detected. Levels of mycotoxin (deoxynivalenol) that exceed the maximum allowed reference value was detected in one batch of feed grain on a farm; the use of the feed batch for feeding animals was prohibited. Residues of coccidiostats were detected in two batches of mixed feed from one feed factory in concentrations that exceed the maximum allowed limit, which led to the prohibition of the entry to market of the batches.

The production of medicated feeds follows the current animal health situation, which influenced the collection of samples by authorities. In the year under revision, the production of medicated feeds and the own check analyses were inspected in connection with the inspections of the operators involved in the production of medicated feed.

The control of genetic modifications concentrated on the control of the genetically modified organisms approved in the EU and the labelling and traceability of the feed produced from them. Feeds with no indication of genetic modification were targeted in sampling. However, genetically modified feed was also inspected. Genetically modified components not approved in the EU were not detected in the inspected feeds. Levels of approved genetically modified components that require the feed batch to be labelled as genetically modified were not detected, either.

In 2017, Evira made extensive use of multi-method analyses in the testing for chemical substances. The use of multi-method analyses further enhanced the efficiency of the control of residues of harmful and prohibited chemical substances in feed, as well as the control of nutritional aspects of feeds using a single sample.

Feed control report 2017 (in Finnish): <https://www.evira.fi/tietoa-evirasta/esittely/toiminta/valvonta/arviointi-ja-raportit/sectorikohtaiset-valvontaraportit-2017/>

## 8.5. Food allergies

In 2017, 66 cases of serious allergic reactions were reported to the national anaphylaxis register, 49 of which were caused by food. An error concerning allergens means that a product contains an ingredient that causes an allergy to some consumers, but this allergen has not been listed in the labelling. In 2017, allergens caused the recall of 13 food products, which represents 8% of all withdrawals (in 2016, the corresponding percentage was 18%, and in 2015, 27%).

The management of allergens and substances that cause intolerances is evaluated in the Oiva inspections (Table 53).

According to the Oiva evaluation scale, the requirements are mostly complied with in the operations or the shortcomings detected were minor (over 90% of the results were excellent).

Table 53. The Oiva results – allergens and substances that cause intolerances

Allergens and substances that cause intolerances								
Sector	Inspected	Results				Guidance and instruction	Notice	Coercive measures
		A	B	C	D			
	number	number (%)	number (%)	number (%)	number (%)	number	number	number
Food service	8,599	8,285 (96.3)	282 (3.3)	32 (0.4)		301	34	1
Food product retail sales	1,089	10,444 (95.9)	32 (2.9)	13 (1.2)		46	9	
Food product wholesale selling	16	16 (100)						
Food production/ fish sector	46	37 (80.4)	7 (15.2)	2 (4.3)		7	2	
Food production/ meat sector	80	66 (82.5)	12 (15.0)	1 (1.3)	1 (1.3)	12	1	2
Food production/ dairy sector	34	33 (97.1)	1 (2.9)			1		
Food production/ egg sector								
Food production/ cereal and vegetable sector	292	260 (89.0)	27 (9.2)	3 (1.0)	2 (0.7)	27	3	2
Food production/ other	85	15 (95.3)	2 (3.5)	1 (1.2)		3	1	
Food storage and freezing	18	15 (83.3)	2 (11.1)	1 (5.6)		3		

## 8.6. Nutritional safety

Nutritional safety was considered in the new national recommendations for school meals in Finland. In addition to nutrition recommendations, factors such as hand hygiene, allergens and intolerances when serving meals and the Oiva system were considered when drafting the new recommendations for school meals. Instructions for safe use of foodstuffs to children, adolescents, and pregnant and breastfeeding women were updated on the Evira website; a link to the instructions can be added to the food recommendations.

In connection with the implementation of the food reformulation programme of the Commission, the national Nutrition Commitment initiative was started in collaboration with the National Nutrition Council, ministries and the food sector. During the first six months of the programme, 32 commitments for improving the nutritional quality of foodstuffs were made.

## 9. Risk assessment and research projects in food safety – results and their use

### Risk assessment

Several years of development of a statistical method (BIKE) that helps assess the exposure of Finnish consumers to hazards transmitted by foods was finished and validated in terms of chemical (such as cadmium) and microbiological (such as *Listeria monocytogenes*) hazards. The method accounts for the food consumption data and the presence or concentration of hazardous substances in the foods for assessing the exposure. The method can utilise incomplete and fragmented data better than previous models, and it can also use analysis results that do not exceed the detection limit. The BIKE model is based on open source code, allowing the user to modify it as required. In other words, assessment is transparent. If a dose-response model is linked to the BIKE model, the number of those affected can also be estimated.

Abstract: <https://www.evira.fi/en/about-evira/about-us/activity/risk-assessment/current-research-projects/exposure-to-microbiological-and-chemical-hazards-via-food-bike-project/>

For risk analyses, a 24-hour interview method (Consumption and Handling, CoHa) was developed for collecting data on food consumption. The method accounts for the characteristics of the product as well as factors related to the consumer and preparation of the food better than other interview methods currently in use. It was not possible to organise a comprehensive study covering a representative sample of the whole age group within the project. However, the suitability of the method for collecting the required data was tested by conducting interviews to 42 volunteers aged 65 or over.

The exposure of consumers to food enhancers was mapped for the development of a national control system for additives and flavourings. The results are partly based on the data received from the food industry on actual usage and partly on maximum permissible levels of intake of the substances, resulting in some of the results describing a worst case scenario. According to the results, additives were grouped into substances whose intake in Finland is conservatively estimated to be on a safe level and substances whose intake requires further study. The latter category includes some colouring agents, preservatives and sweeteners as well as some agents that modify the texture of a food product. The assessment of the intake of flavourings proved to be challenging due to the amount of uncertainty involved in the methods used and the scarcity of information available regarding the occurrence and concentrations of flavourings in foodstuffs. The intake of certain flavourings may, however, be high in consumers who are loyal to a brand or in those who consume large amounts of products that contain flavourings. An actual risk analysis concerning enhancers can only be conducted after the most serious lacks of information have been remedied.

Abstract: <https://www.evira.fi/en/about-evira/about-us/activity/risk-assessment/current-research-projects/exposure-of-finnish-consumers-to-food-additives/>

With the EU legislation on polycyclic aromatic hydrocarbons (PAH) becoming more stringent, the exposure of Finnish consumers to PAHs was studied. The results show that the majority of exposure is caused by food products with low concentrations of the substances but with high levels of intake, such as sausages and bread.

The objective of the “Risk profile of plant food supplements” project was to assess the possible health hazards of the plant food supplements most commonly consumed in Finland. The assessment of the intake of plant food supplements and the effects of the substances they contain was continued based on the results of the

PlantLIBRA study of the EU that was conducted earlier. The preliminary results indicate that Finns are not exposed to any specific health hazards; however, food supplements are sometimes used together or at the same time with medicinal products, in which case the combined effects of plant food supplements and medicinal products may have adverse effects on health, particularly because people do not tend to mention the use of food supplements to the consulting doctor.

Abstract: <https://www.evira.fi/en/about-evira/about-us/activity/risk-assessment/current-research-projects/a-risk-profile-of-plant-food-supplements/>

The “Risk profile of contaminants – national point of view” project identifies the most essential contaminants listed in the EU legislation or monitoring recommendations from the point of view of Finland. The contaminants are prioritised according to their toxicity and the information available on the exposure of Finns to the substances. In addition, any gaps in the information regarding the occurrence or toxicology of the contaminants are mapped. The project continues until 2019.

Abstract: <https://www.evira.fi/en/about-evira/about-us/activity/risk-assessment/current-research-projects/risk-profile-of-contaminants--national-point-of-view/>

The exposure of Finnish children to heavy metals was already assessed in a previous project, the results of which were published in a report completed in 2015. A similar project assessing the dietary heavy metal exposure of adults was started in 2017.

Abstract: <https://www.evira.fi/en/about-evira/about-us/activity/risk-assessment/current-research-projects/dietary-heavy-metal-exposure-of-finnish-adults2/>

A tool for categorising and ranking risks according to their health effects has been developed in a “Risk Ranking” project with Swedish Livsmedelsverket, among others. The objective is to categorise the most relevant chemical and biological risks for food safety clearly to facilitate risk management.

The hygiene passport project, an evaluation of the efficacy of the Finnish hygiene proficiency system, was started using risk assessment methods. The objective is to verify the importance of a national proficiency test as an indicator of basic food hygiene proficiency, study factors that affect the performance, the permanence of the skills of those who have passed the test and the effect of proficiency certification on working methods and the control results obtained by companies.

### **Research on microbiological food safety**

The “Human pathogenic bacteria and their contamination routes on dairy farms and in raw milk” project aims at investigating the risks posed to consumers by the occurrence of campylobacteria, STEC bacteria and *Listeria monocytogenes* in raw cow milk for direct or retail sale, and the nature of contaminations on dairy cattle farms caused by these bacteria. The project continues until 2018. Abstract: [Human pathogenic bacteria and their contamination routes on dairy farms and in raw milk.](#)

The revision and validation of the international standard method for detecting *Yersinia enterocolitica*: A validation study ordered by the European Commission of the 15 most important microbiological standard methods was carried out in 2012–2017. Evira participated in the project and coordinated the revision and validation of the standard method for detecting the pathogenic *Y. enterocolitica* bacteria. Standard methods for essential methods in food microbiology have existed for years. However, a comprehensive, uniform study on their efficacy and limits of detection had not been conducted. In the project, Evira provided research data

to support the methodological solutions and organised international, interlaboratory rounds of comparative studies to validate the method. The project resulted in international ISO standards for microbiological methods that are more reliable than before in Europe and internationally. The effectiveness criteria of the method obtained from the results, such as the limit of detection, were published in the revised standard SFS-EN-ISO 10273:2017. The results were also published in a theme issue of the International Journal of Food Microbiology magazine (<https://www.sciencedirect.com/science/article/pii/S0168160518300096>)

“INNUENDO: A novel cross-sectorial platform for the integration of genomics in surveillance of foodborne pathogens” is a project that aims at developing a software platform for authorities to utilise the results of whole genome sequencing in investigating foodborne outbreaks and monitoring pathogens. The project continues in 2018. The abstract of the project is available at [INNUENDO: A novel cross-sectorial platform for the integration of genomics in surveillance of foodborne pathogens](#).

The “Antimicrobial resistance and residues on cattle farms – effects on the environment and health” (NAMI) project examines how antimicrobial-resistant bacteria, resistance genes and antimicrobials, including their metabolites, spread in Finnish conditions from medicated cows via the manure chain into the farm environment and further into the surrounding environment. The project continues in 2018. The abstract of the project is available at: [Antimicrobial resistance and residues on cattle farms – effects on the environment and health \(NAMI\)](#).

The “Control and prevention of antimicrobial resistance in the pork production chain” (LÄKÄ) project investigates the occurrence of antimicrobial resistance in the pork meat production chain and the factors affecting the resistance. A popular information package on resistance will also be drafted in the project. The project continues until 2018. The abstract of the project is available at <https://www.evira.fi/en/about-evira/about-us/activity/risk-assessment/current-research-projects/control-and-prevention-of-antimicrobial-resistance-in-the-pork-production-chain-laka/>

In 2017, Evira conducted a project on the occurrence of pathogens in vegetables. The project investigated the occurrence of pathogenic *Yersinia*, Shiga toxin-producing *Escherichia coli* (STEC) and enteropathogenic *E. coli* (EPEC) bacteria as well as the occurrence of *Bacillus thuringiensis* and ESBL *E. coli* bacteria in ready-to-eat salad mixes, leaf vegetables and herbs available to retail customers. There is no comprehensive information available in Finland on leaf vegetables and herbs in transmitting pathogenic bacteria. Still, outbreaks caused by *Yersinia* bacteria, STEC and EPEC in particular, transmitted by vegetables, have occurred in Finland. The occurrence of *Bacillus thuringiensis* bacteria and extended-spectrum beta-lactamase producing (ESBL) *E. coli* bacteria in the vegetables sold in Finland has not been investigated before. A total of 102 samples were collected in retail shops located in the Uusimaa region in 2017. The percentage of Finnish products was 44% (45 products) and that of imported products 38% (39 products). In the case of 18 products (18%), the country of origin of the samples was unknown. While the occurrence of pathogenic bacteria in vegetables was found to be low, the study did not rule out the role of salad mixes as a possible source of STEC and particularly EPEC infections in humans and in transmitting ESBL bacteria. The investigations will be continued as an extended national project on pathogens in packaged leaf vegetables in 2018–2019.

### **Chemical food safety and nutrition**

The EU-fish project aims at providing more information on the levels of dioxin and PCB compounds as well as polybrominated diphenyl ethers (PBDE), perfluoroalkyl substances (PFAS) and heavy metals in the domestic fish species found in Finnish lakes and the Baltic Sea that are of commercial significance and



primarily used in Finland for food. Another objective is to promote and guide the use of fishery resources. The project continues until 2018. The abstract of the project is available at [EU-fish III](#).

The Fineli food composition database is the single most important source of information for the industry and small businesses in Finland for compiling the nutritional information and energy content information for labelling. Other groups that use Fineli include decision-makers, researchers, risk assessment, health care providers, food service providers, software designers, educators and citizens. A national analysis project was started in 2010 to update the information; the objective was to analyse 30 to 40 food products a year. In 2017, vegetables, wild herbs, berries and mushrooms as well as fats intended for the use of consumers were analysed. The participants in the national monitoring group of the Fineli project are: the National Institute for Health and Welfare, the Ministry of Social Affairs and Health, the Ministry of Agriculture and Forestry, Evira, the National Nutrition Council, Natural Resources Institute Finland, the University of Helsinki, Finnish Food and Drink Industries' Federation, and the Finnish Grocery Trade Association. The abstract of the project is available at [Update of the Fineli Food Composition Database](#).

An initiative on mapping and controlling the intake of oleiferous seeds. The mapping and control initiative conducted by Evira, partly in collaboration with municipal food control authorities, investigated the nutritional composition and the heavy metal concentrations of the seeds of oleiferous plants sold in Finland (shelled sunflower seeds, whole linseeds, whole sesame seeds, shelled sesame seeds, shelled pumpkin seeds, shelled pine kernels, whole chia seeds, whole hempseeds, shelled hempseeds and poppy seeds). More information (in Finnish): <https://www.evira.fi/elintarvikkeet/ajankohtaista/2017/syo-oljykasvien-siemenia-vaihtelevasti-ja-kohtuullisesti/>

The objective of the “PProduct” project is to study the possibilities of utilising the fertilising effect of sludge bound phosphorus, and its long-term effects in particular, in plant production and to estimate the impact it has on the environment and food safety. The results indicate that the value of sludge bound phosphorus as fertiliser is lower than that of phosphorous from a commercial fertiliser in the application year. However, its fertilising effect increases over time. Concentrations of compounds used in e.g. surface treatments and flame retardants, and those of pharmaceuticals in various fertilisers produced from sewage sludge, and the concentrations of brominated flame retardants in sludge-based fertilisers produced in different parts of Finland were studied. Hazardous substances were detected in all of the inspected products. The study showed that pyrolysis significantly decreased the levels of nearly all of the investigated compounds. However, the concentrations of some of the compounds increased in pyrolysis. It cannot be concluded from the results whether the compounds bio accumulate in plants or what the aggregate effects of the usage of sewage sludge as fertiliser may have on food safety. Nevertheless, the study provided valuable information for further research and about areas to focus on. The abstract is available at: <https://www.evira.fi/en/about-evira/about-us/activity/risk-assessment/current-research-projects/potential-of-sewage-sludge-phosphorus-in-plant-production-and-impacts-of-harmful-compounds-in-sludge-on-environment-and-food-chain-pproduct3/>





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