



ANNUAL REPORT [compact]

2017

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SCIENCE IN THE SERVICE OF HUMANITY

Foreword



Prof. Dr. Dr. Andreas Hensel, President



Prof. Dr. Reiner Wittkowski, Vice-President

Dear Readers,

2017 was a special year for the German Federal Institute for Risk Assessment (BfR) as we celebrated our 15th anniversary. In line with the motto “Science in the Service of Humanity”, we paid tribute to the work of the BfR with various jubilee events. It started off with a BfR school kids' university, followed by a ceremony with national and international sister authorities and cooperation partners and an international symposium on the future challenges facing consumer health protection in times of globalisation. To finish off the jubilee year, BfR scientists presented science from a different perspective at the second BfR Science Slam.

In addition to an overview of the events at the BfR Academy and latest developments in the fields of research, human resources and training, this annual report provides an insight into the facts, key figures and publications of the BfR. Anyone with an interest in the current topics of the individual BfR departments can read all about them in the science magazine BfR2GO.

For 15 years now, the BfR has been making a decisive contribution towards uncovering and assessing risks and the pursuit of a professional discourse in order to offer decision makers a factual basis. When it became known in summer 2017 that eggs from various European countries were contaminated with the insecticide fipronil, the media and general public praised the BfR for its scientifically sound and clearly communicated risk assessment. Global goods chains are making the traceability of foods more and more complex. In order to evaluate the flood of information, with the online portal FoodRiskLabs, the BfR has developed software solutions which support data and knowledge management and can also prevent outbreaks of foodborne disease. The bandwidth of independent, application-orientated research at the BfR also becomes apparent in third party-funded projects. Furthermore, with the doctoral training programme established in 2017 and the set-up of five junior research groups to deal with selected topics at the Institute, such as tattoo inks and nanotoxicology, the BfR promotes up-and-coming scientific talent.

With our work, we contribute towards making the world a safer place for everybody. Our thanks are due to all of the staff at the BfR. Only through their dedication can we look back on 15 successful years and face up to the challenges of the future.

A handwritten signature in blue ink, reading "Andreas Hensel".

Prof. Dr. Dr. Andreas Hensel,
President

A handwritten signature in blue ink, reading "Reiner Wittkowski".

Prof. Dr. Reiner Wittkowski,
Vice-President

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PERSONNEL AND TRAINING



The BfR has been setting scientific standards in consumer health protection for more than 15 years.

 Website of the BfR: www.bfr.bund.de/en

About the BfR



Objectives and missions

The German Federal Institute for Risk Assessment (BfR) is a scientifically independent institution within the portfolio of the Federal Ministry of Food and Agriculture (BMEL). It advises the Federal Government and federal states (“Laender”) on questions of food, chemical and product safety. The BfR conducts its own research on topics that are closely linked to its assessment tasks. With its work, the BfR makes a decisive contribution towards the protection of consumer health.

The BfR was established in 2002 to strengthen consumer health protection. It is the scientific institution of the Federal Republic of Germany which prepares reports and opinions on questions of food and feed safety, as well as the safety of substances and products. The BfR is tasked with assessing existing and identifying new health risks, preparing recommendations on risk limitation and communicating this process to policy makers and the general public. The BfR also performs the tasks of the “German Centre for the Protection of Laboratory Animals (Bf3R)”.

The BfR is advised by a network of scientific experts from committees, as well as the Scientific Advisory Board. As the national Focal Point of the European Food Safety Authority (EFSA) and partner of the European Chemicals Agency (ECHA), the BfR cooperates with more than 50 national, international, governmental and non-governmental institutions.

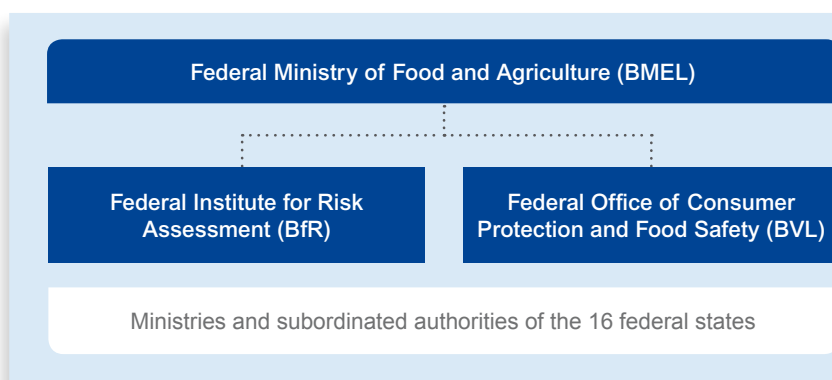
The BfR currently has around 940 employees in nine departments at three locations in Berlin. The BfR is independent in its scientific assessments, research and communication activities.

Position in consumer health protection

The BfR was established as a federal authority with legal capacity within the portfolio of the Federal Ministry of Food and Agriculture. It advises the federal ministries in the drafting of legal regulations. It assesses health risks from a scientific point of view and outlines possible courses of action to minimise risks. These are converted into protective measures for consumers by management on federal government level.

i *The detailed legal foundation of the BfR:*
www.bfr.bund.de/en > *The Institute* > *Remit*

It is the duty of the authorities of each federal state (“Land”) to monitor compliance with the national and European legal consumer protection regulations. The BfR supports the federal states in this task by developing and establishing analysis methods for monitoring, for example, or giving an advisory opinion on current consumer health issues. The BfR is also involved in various registration and approval procedures.



For justified consumer protection measures, the current state of scientific knowledge is first ascertained from the Federal Institute for Risk Assessment. In contrast, the Federal Office of Consumer Protection and Food Safety and the Federal Ministry of Food and Agriculture are responsible for management tasks at the federal level.

Executive Board and departments

“Identifying risks – protecting health” – that is the central task of the BfR. The Institute is headed by its President, Professor Dr. Dr. Andreas Hensel, and his Vice-President, Professor Dr. Reiner Wittkowski. They are supported in their work by several staff units and the nine departments introduced below.

Administration Department

Head: Michael Gose (since May 2018)

Administration is the service provider for all specialised departments. It looks after the infrastructure, personnel recruitment, concerns of the workforce regarding personnel matters, management and control of receipts and expenditure, as well as fittings and furniture and the organisational and technical maintenance of rooms and Institute grounds. The department issues organisational rules for the Institute and is responsible at the same time for compliance with legal requirements.

Risk Communication Department

Head: PD Dr. Gaby-Fleur Böhl

The interdisciplinary Risk Communication department conducts social scientific research projects on the perception of risks, the early detection of risks and the estimation of their consequences. Another focus is crisis prevention and coordination. The department also encompasses press and public relations work, the BfR committee system and the BfR Academy. The dialogue with stakeholders from science, economics, politics, the media, associations, non-government organisations and the consumer is also of great significance.

Exposure Department

Head: Professor Dr. Matthias Greiner

The department assesses consumer exposure in the fields of food, chemical and product safety and conducts research projects in these areas, including the BfR MEAL study. It provides technical support in areas such as mathematical statistics and modelling. The department performs legally prescribed tasks in the fields of chemical safety, the transport of hazardous goods, poisoning and product documentation and good laboratory practice. It is also a service provider for the BfR's IT infrastructure.

Biological Safety Department

Head: Professor Dr. Karsten Nöckler

The department investigates the health risks posed to humans by microorganisms and the toxins and other metabolites they produce. Not only foodstuffs are evaluated for their potential as carriers of biological hazards, but also animal feed, cosmetics and other consumer products (such as food packaging materials) as well as the processes by which they are acquired, manufactured, processed and distributed.

Food Safety Department

Head: Professor Dr. Dr. Alfonso Lampen

The department assesses the risks posed by substances in foods, including natural ingredients, additives and flavourings and contaminants, as well as undesired substances which find their way into food through manufacturing, storage or treatment processes. Dietary risks are also assessed along with the risks of certain population groups. Experimental projects on the mechanisms of action of oral intake (bioavailability), internal exposure (biomarkers in human studies) and on the molecular mechanisms of action (toxicogenomics) of relevant substances make up an integral part of the assessment.

Pesticides Safety Department

Head: Dr. Roland Solecki

The department is responsible for the health risk assessment of plant protection products and biocidal products. This involves the assessment of the toxicological properties of pesticidal active substances and their metabolites, their classification and labelling as well as the derivation of health-based limit values. After estimating expected exposure, risk assessments are conducted for consumers and persons exposed by application. Additionally, maximum residue levels and methods for monitoring them are validated and assessment strategies further developed.

Chemical and Product Safety Department

Head: Professor Dr. Dr. Andreas Luch

The department assesses chemical substances covered by chemical law and identifies measures to reduce risks. A further task is to identify, conduct research, assess and prevent health risks that may be associated with consumer products, such as cosmetics, tobacco products and commodities (e.g. food packagings, toys, clothing etc). Experimental projects focusing on the release, exposure and toxicity of migrating chemical substances form an integral part of these assessment activities.

Safety in the Food Chain Department

Head: Dr. Monika Lahrssen-Wiederholt

The department assesses the health risks resulting from the uptake of contaminants and residues from foods and feeds and quantifies the transfer of undesired substances from livestock feed along the food chain into foods of animal origin. The national reference laboratories for dioxins and PCB in foods and feeds, mycotoxins, marine biotoxins, additives in animal feed, as well as the senior expert office for the control of foreign wines all belong to the department. Product identity and the traceability of foods and feeds, as well as the analysis of global goods flows, are other main work areas.

Experimental Toxicology and ZEBET Department

Head: Professor Dr. Gilbert Schönfelder

The department fulfils the tasks and aims of the Animal Welfare Act (TierSchG) and the regulation on the protection of animals used for experiments or other scientific purposes, as well as those of the German Centre for the Protection of Laboratory Animals (Bf3R). The scientific work also serves to provide advice to authorities, research institutions and political decision makers. Its main tasks are the research and development of alternative methods to animal experiments in line with the 3R principle. The department is also involved in the (further) development of toxicological test methods and assessment strategies, which include on a regulatory level the Chemical Programme run by the Organisation for Economic Cooperation and Development (OECD).



Left to right: Prof. Dr. Dr. Andreas Hensel, Michael Gose, Prof. Dr. Matthias Greiner, Dr. Monika Lahrssen-Wiederholt, Prof. Dr. Gilbert Schönfelder, PD Dr. Gaby-Fleur Bül, Prof. Dr. Dr. Alfonso Lampen, Prof. Dr. Dr. Andreas Luch, Prof. Dr. Karsten Nöckler, Dr. Roland Solecki, Prof. Dr. Reiner Wittkowski

Principles and working procedures

The German Federal Institute for Risk Assessment (BfR) prepares expert reports and opinions on questions of food and feed safety, as well as the safety of chemicals and products. By doing so, it makes an important contribution towards improving consumer protection and food safety. The BfR is free of economic, political and social interests in its research, assessments and communication. It provides information in a way that can be easily understood by the general public.

Impartiality

The impartiality of the experts is a fundamental precondition for guaranteeing independent risk assessment. For this reason, the separation of scientific risk assessment and subsequent risk management was asserted in Europe 15 years ago. To ensure its independence, the BfR does not accept any funding from industry; it is financed solely through federal government funds and national and international, publicly financed third party projects.

The overall concept of the BfR explicitly provides for the exchange with various stakeholders, such as NGOs, consumer associations, trade and industry, politics, science and the media. The involvement of various stakeholders is of particular importance when scientific positions are represented and justified. The risk assessments themselves, however, are prepared exclusively by BfR employees. External consultants merely advise the BfR, they do not make any official decisions. The work results and recommendations of the BfR serve all interested parties as an important decision-making tool when identifying and implementing measures. Statements made by the BfR are orientated on internationally recognised principles and the reasoning behind them is explained in a way that outsiders can understand. Existing knowledge is given due consideration and clearly presented. Relevant scientific oppositions are given in full.

Transparency is necessary on all levels of risk assessment. The assessment must be clear, understandable and reproducible from the objectives and scope of the opinion through the source, type and evidence of the data on which it is based and must include an explanation of the methods, assumptions, uncertainty and variability it contains, all the way through to the result and conclusions.

Assessment

The assessment of a risk takes into account the probability of the occurrence of a health hazard and the expected extent of the health impairment. A health risk can never be completely excluded. Using a variety of suitable measures known as risk management, an attempt is made to minimise risks to the greatest possible extent and prevent a health hazard.

It is the task of the BfR to provide the responsible bodies with a sound scientific basis for risk management. The recognition and evaluation of a risk are known jointly as risk assessment and constitute the first steps in consumer health protection. Risk management can then pick up on this and take the appropriate measures.

Risk assessment is made on the basis of internationally recognised scientific assessment criteria (see sketch). It comprises the estimation of a risk by means of scientific methods.



Independent research is the basis of risk assessments at the BfR.



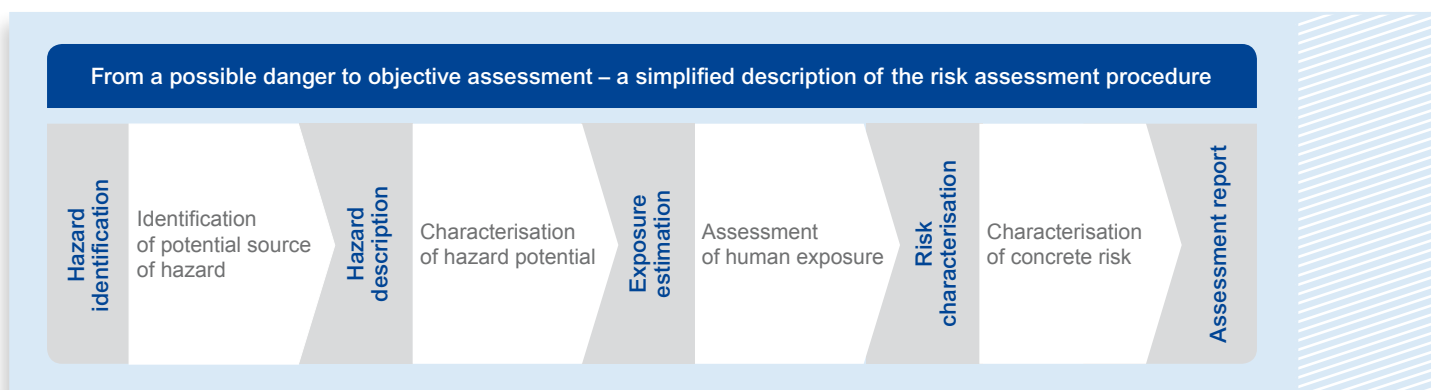
The assessment results promote discourse and provide decision makers with a sound basis.

A distinction is made between qualitative risk assessment, in which risks are described verbally – following the pattern shown in the box – and quantitative risk assessments, which are at least partly based on calculations or mathematical models in which the risks are described by means of mathematical or statistical methods.

The risk assessments conducted by the BfR are always the object of the Institute's risk communication too. The BfR has the legal remit of informing the general public about possible, identified and assessed risks.

The assessments are presented transparently and are comprehensible. The results are made accessible to the general public on the BfR website in compliance with the rules governing the confidentiality of protected data. The Institute maintains a dialogue with representatives of politics, science, consumer associations, trade and industry, NGOs and the media at expert hearings, scientific conferences and consumer forums.

i The BfR has published guidelines for health assessments in the field of consumer protection which formulate the requirements of BfR risk assessments: www.bfr.bund.de/en > Publications > Brochures > Guidance Document for Health Assessments



BfR Committees

Fifteen committees of scientific experts advise the BfR on matters concerning the safety of foods and feeds, chemicals and products as well as on risk communication. They consolidate the expert knowledge available in Germany on the highest scientific level and can be called upon for advice as an established network in times of crisis.

The roughly 200 committee members are external, independent experts who support the work of the BfR in an honorary and advisory capacity. They come from universities and other research institutions, national and regional authorities as well as trade and consumer associations.

The BfR committees are made up of at least ten members, with each committee electing a chair from among its own ranks. The BfR provides support by taking over management tasks. The minutes of each meeting which outline the committees' advisory results are made available to the public through the BfR website. An essential difference between the scientific committees of the European Food Safety Authority (EFSA) and the BfR is that in line with the BfR's rules of procedure, the BfR committees play a purely advisory role and do not conduct any risk assessments.

The fourth appointment period of the BfR committees has been running since January 2018. 210 members were appointed as experts to the 15 committees for the period from 2018 to 2021 after a public call and selection by an appointment board set up for this purpose.

The appointment board is made up of members of the BfR Scientific Advisory Board, one representative of the Senate Commission on Food Safety (SKLM) and of the Max Rubner Institute (MRI), as well as a representative of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and Federal Ministry of Food and Agriculture (BMEL).

i *The tasks of the BfR committees, list of members and rules for ensuring independence:*

www.bfr.bund.de/en > [The Institute](#) > [BfR Committees](#)
www.bfr.bund.de/en > [The Institute](#) > [Bf3R Committee](#)

Additional expert committee at the BfR:

www.bfr.bund.de/en > [The Institute](#)
 > [National Breastfeeding Committee](#)

Quality management

Why does the BfR require a quality management system? Structures are needed to ensure quality. They help the BfR to implement important principles such as transparency and traceability and to guarantee the high quality of opinions. The BfR has been developing quality management structures since 2003, first according to DIN EN ISO/IEC 17025 and later according to DIN EN ISO 9001.

The standard DIN EN ISO/IEC 17025 calls for technical and specialist competence of testing and calibration laboratories and thus enables high quality at an international level. Accreditation serves to confirm high-quality and reliable results.

DIN EN ISO 9001 calls for defined work procedures and responsibilities so that high work and product quality can be achieved. This applies to the scientific work of the BfR as well as to administration and communication. Within the scope of so-called internal and external audits, quality requirements and adherence to these requirements are checked and continuous improvement is aimed for.

Both quality certifications require regular and impartial verification: The certification seal must be confirmed again every three years and re-accreditation takes place every five years. In addition, so-called monitoring audits take place regularly. Quality-assured work according to DIN EN ISO 9001:2008 was most recently confirmed in May 2017 by the independent TÜV Nord Cert GmbH. Adherence of the scientific laboratories to the standard DIN EN ISO/IEC 17025:2005 was last verified in November 2017 by the Deutsche Akkreditierungsstelle GmbH (German Accreditation Body, DAkkS).

i *Information on BfR quality management:*
www.bfr.bund.de/en > [The Institute](#) > [Quality management](#)

The national reference laboratories are the connecting link between the EU and the food monitoring authorities in the member states.

Reference Laboratories

National reference laboratories work on food monitoring standards in order to ensure the safety of foods in the entire EU area. To this end, 19 reference laboratories are located at the BfR from the fields of food and feed safety and food hygiene. They are subdivided into two groups: national reference laboratories in line with Regulation (EU) 2017/625 and other BfR laboratories with a reference function.

The national reference laboratories located at the BfR in line with Regulation (EU) 2017/625 employ food chemical, molecular biological and microbiological analysis methods in the course of their work. They are appointed by the BMEL. The foundation of their work is formed by various legal regulations, such as food and feed law and regulations on consumer products.

One essential task of the national reference laboratories is to develop and validate methods (including interlaboratory comparisons) and conduct suitability tests between official laboratories for quality assurance purposes. The establishment of the national reference laboratories ensures that uniform standards are applied throughout Europe. This is of particular importance in the monitoring and control of food, for which the principle of the free movement of goods within the EU applies. The national reference laboratories also act as the national connecting link between the community reference laboratories of the EU and the food monitoring authorities in the member states.

The range of duties of several of the national reference laboratories located at the BfR was expanded in 2017. The NRL for Mycotoxins now also covers the area of plant toxins. The analysis spectrum of the NRL for Marine Biotoxins was supplemented to include tetrodotoxin and the NRL for Dioxins and PCBs was additionally given responsibility for the field of chloroparaffins, perfluorinated alkyl substances and brominated flame retardants. These tasks were also assigned by the BMEL.

In addition to the national reference laboratories based on EU law, other laboratories with a reference function are also located at the BfR. These include the Reference Laboratory for Genetically Modified Organisms (GMO), the senior expert office for the control of wine imports in line with the wine monitoring regulation, zoonosis reporting and the consultant laboratory for leptospires and Yersinia.

i List of the national reference laboratories active at the BfR and other laboratories with a reference function: www.bfr.bund.de/en > **The Institute** > **Reference Laboratories**



In cooperation with the European reference laboratories, the 19 reference laboratories at the BfR ensure that uniform standards apply throughout Europe.

International cooperation

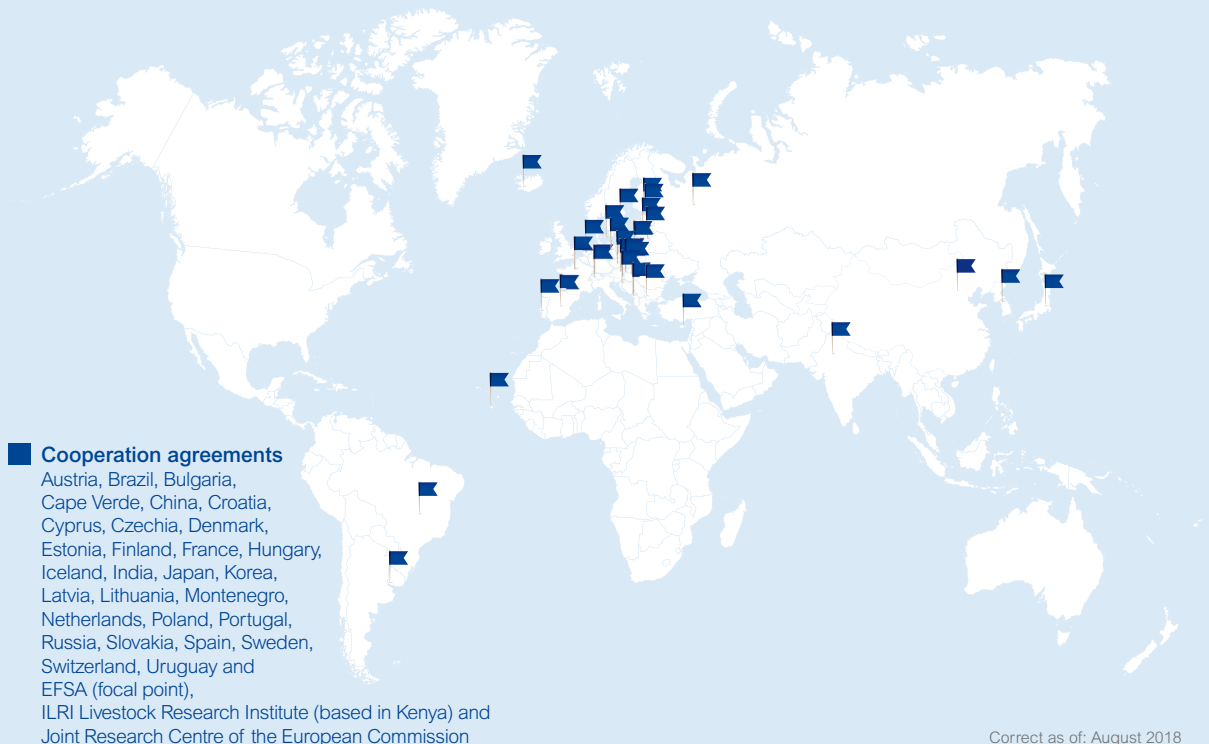
Flows of goods are subject to frequent and rapid innovations and have been fundamentally changed by globalisation. New raw materials and products are entering the German market. Quality and safety standards in the countries of origins often do not compare to the local standards. For this reason, food and product safety today can only be ensured by means of an international approach.

The BfR is meeting this challenge through close cooperation with ministries and partner authorities on all continents. The exchange of information and the establishment of uniform procedures and standards contribute to a high level of safety, even in the case of imported products. Moreover, setting up effective structures for risk assessment and risk management in the partner countries results in sustainable improvements and thus benefits consumers throughout the world.

The supervisory ministry, the German Federal Ministry of Food and Agriculture (BMEL), attaches great importance to further strengthening such cooperation. The international activities and regional focuses are closely coordinated with one another. Cooperation with partner institutions takes place by means of reciprocal visits, joint symposiums, expert exchanges and training, e.g. in the context of the BfR Summer Academy, the Werner-Baltes Fellowship Programme and Twinning projects.

Cooperation with the European Food Safety Authority (EFSA) is especially significant. The BfR is represented in many EFSA committees and thus makes a considerable contribution to food safety in Europe. As the national contact point ("EFSA Focal Point"), the BfR coordinates the exchange of scientific information between EFSA and the authorities in Germany responsible for food and feed safety, as well as involved parties from the economic, political and scientific fields and from consumer associations.

Food safety is globalised – BfR international cooperation agreements





The BfR currently has cooperation agreements with 50 partners in 30 different countries. In 2017, additional agreements were signed with Sweden (National Food Agency), Russia (Russian State Center for Animal Feed and Drug Standardization and Quality) and Cape Verde (Agency for the Regulation and Supervision of Pharmaceutical Products and Food). Close contact with the European sister authorities is a key aspect of these agreements. The BfR has a long-running partnership with ANSES (France), DTU (Denmark) and AGES (Austria). In 2017, for example, the BfR arranged an international symposium in cooperation with DTU and ANSES. It also took on the tasks as national reference laboratory for the monitoring of marine biotoxins for Austria.

Working together with important non-European trading and cooperation partners is an additional focus. In this context, particular emphasis is being placed on China, with six cooperation agreements. In November 2017, the BfR took part once again in the annual “China International Food Safety & Quality Conference” (CIFSQ) and, together with EFSA, organised a session on “Global Harmonisation of Principles and Methods for Risk Assessment of Chemicals in Food”.



The BfR also intensified cooperation with food safety authorities in Portuguese-speaking countries in 2017. In this context, the BfR presented a special edition of the EU Food Safety Almanac for the Community of Portuguese Language Countries (CPLP) in February.

The following projects were particularly important for co-operation in 2017:

1. International symposium “Global Past, Present and Future Challenges in Risk Assessment – Strengthening Consumer Health Protection”

On the occasion of its 15-year anniversary, the BfR and its partner institutions from France, Denmark and South Korea issued an invitation to look back on the last fifteen years of risk assessment in the EU and the world. During the two-day international symposium, current activities and future challenges of consumer protection relating to microbiological pathogens, chemical substances, methods and harmonisation at a national and international level were discussed with over 300 participants.

2. EU-FORA – The European Food Risk Assessment Fellowship Programme

In the context of the EU-FORA fellowship programme, four fellows have been working at the BfR since September 2017. EU-FORA is a one-year programme for talented young scientists from the EU who wish to specialise in microbiological or chemical risk assessment in the food chain. The programme aims to enhance the scientific skills of the fellows through training and practical experience.

3. EU and ENP Almanac

The EU Almanac, the fourth edition of which was published in 2017, provides an overview of the structures and responsibilities in the field of food safety in 38 European countries. The English edition has been translated into German, French, Portuguese and Spanish. In 2018, it was also published in Chinese and Russian.

The BfR prepared the first edition of the ENP Almanac together with EFSA within the scope of the European Neighbourhood and Partnership Instrument (ENPI). The Almanac provides an overview of the structure of food safety authorities in the EU neighbouring states Armenia, Georgia, Israel, Jordan, Lebanon, Moldova, Morocco, Tunisia, Ukraine and Belarus.

FoodRisk-Labs: Risk assessment tools in an era of global supply chains

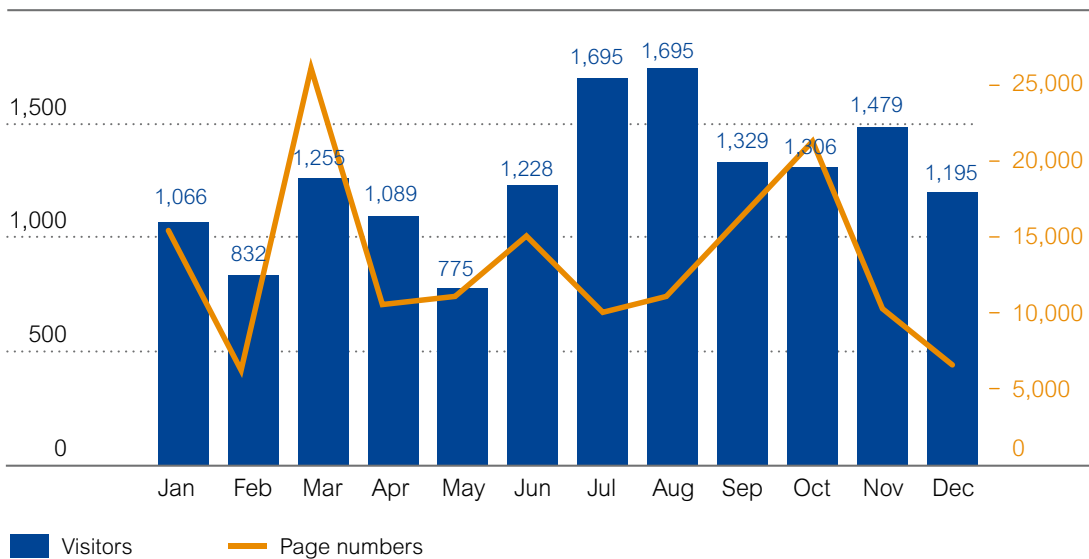
With the increasing globalisation of food production and the associated complexity of supply relationships, investigations into outbreaks of foodborne illnesses and traceability analyses are becoming more and more complex. The amount of experimental and analytical data on food safety and on monitoring production and transport processes is growing continuously.



FoodChain-Lab facilitates analyses for the traceability of foods.

But how can professionals and authorities evaluate and use the abundance of information? The software tools in the “**FoodRisk-Labs**” web portal developed in the Biological Safety Department at the BfR support integrated and standardised data and knowledge management. These tools aid in building up, analysing, evaluating and visualising quality-assured knowledge bases, for example, which can be used for risk assessment, on the one hand, and as a basis for making risk management decisions, on the other.

FoodRisk-Labs access 2017




All tools are open-source applications, meaning that they can be freely used and also further developed. Free training is offered regularly throughout Europe for all tools. The development of the tools began in 2010 during the BMBF-funded third-party project SiLeBAT – Securing the feed and food supply chain in the event of biological and agro-terrorist (BAT) damage scenarios.

The **FoodChain-Lab** software provides support in solving outbreaks of foodborne illnesses through analysis of supply relationships of suspect foodstuffs. It has already contributed to solving outbreaks of foodborne illnesses in Germany and – together with EFSA – also at a European level.

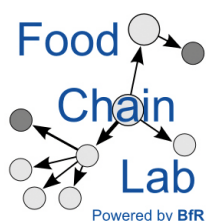
Food Safety Knowledge Lab (FSK-Lab) makes mathematical models in the field of risk assessment accessible in a standardised way and facilitates their use.

With regard to modelling growth and deactivation of microorganisms, **Predictive Microbial Modeling Lab (PMM-Lab)** supports the quality-assured development of new models and the use of these models in the context of BfR assessment work.

Models that have already been published can be researched, downloaded or run online in the **Risk Assessment Knowledge Integration Platform (RAKIP)**.

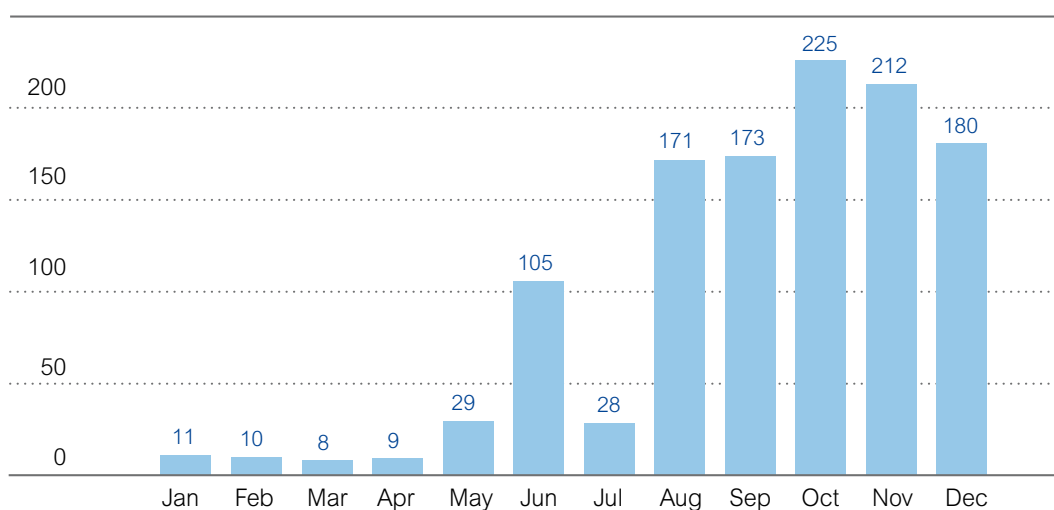
 Overview and additional information on the FoodRisk-Labs tools:

<https://foodrisklabs.bfr.bund.de/en>



FoodChain-Lab offers integrated management and visualisation tools for delivery data as well as interactive analysis options. Scores are calculated for each product – e.g. a food or an ingredient – and each station – e.g. a food producer or a restaurant – in order to estimate the probability of the product or station causing an outbreak. The software also offers simulations based on geographical parameters or cross-contamination during the production process.

FoodChain-Lab downloads 2017



Research



One of the BfR's key competences is independent, application-oriented research as required. This is because in-house research work is an important foundation for consulting activities and the prerequisite for a quick response in the event of a crisis. This is the only way that the Institute can fulfil its legal mandate at a high scientific level and advise political decision makers competently based on the latest research.

The BfR is independent and transparent in the planning, design and performance of all its research activities. To prevent research from being influenced by economic interests, the BfR only applies to public national and European institutions for third-party funding. Comprehensive quality assurance (see page 10) also forms part of the BfR's strategic focus.

The BfR has modern experimental infrastructure in the fields of chemical analytics, microbial diagnostics, toxicology and food/feed safety. This includes a farm with livestock and aquaculture, a facility for performing experimental work on animals, and modern molecular, cytological and protein-biochemical laboratories for developing alternative and substitute methods to animal experiments. Work up to safety level S2/L2 can be performed in the large and small animal laboratory. Microbiological work is possible up to level L3. The laboratory infrastructure is continuously adapted to scientific developments and technical possibilities. For example, nano-analytics has been expanded to include asymmetric flow field flow fractionation and a ToF-SIMS. A high throughput-high content screening system, as well as a multi-photon microscope and super-resolution microscope, are available to identify toxicological molecular mechanisms of action for the development of test methods.

This instrumental equipment enables interdisciplinary investigations and assessments along the entire food and feed chain as well as the product chain. The infrastructure is also available to external cooperation partners.



The BfR has extensive experimental equipment at a very high technical level.

Future-oriented training and support of young scientists represents one of the BfR's strategic tasks. With the doctoral training programme designed and established in 2017, PhD candidates obtain additional methodological and in-depth technical skills. Due to its modular design, the structured programme for continuing and further training enables individual specialisations and thus reflects the diversity of disciplines represented at the BfR.

The setup of junior research groups allows young scientists to dedicate themselves to a specific research topic shortly after completing their PhD and to take on responsibility for staff for the first time. In this way, the junior group leaders become qualified for leadership positions and, at the same time, advance research into selected specialist topics of the BfR. The junior research groups run for a maximum of five years. There are currently five junior research groups on the topics of supply-chain models, authenticity in the supply chain, tattoo safety, nanotoxicology and toxicokinetic modelling.

 **Overview of main research topics at the BfR:**
www.bfr.bund.de/en > **Research**

The “One Health” concept considers the close link between human health and the health of animals and the environment.

Presented: New third-party projects in 2017

Under the umbrella term “One Health”, various scientific disciplines work together for the effective protection of humans, animals and the environment. In the context of the “One Health approach”, the **German Federal Ministry of Education and Research (BMBF)** has been supporting three projects at the BfR since 2017:

1. The **PAC-Campy project** is aimed at **preventing and combating *campylobacter* infections**. This project, which is led by the Freie Universität Berlin, aims to measure contamination with *campylobacter* and reduce the human infection numbers. The BfR is investigating the influence of horizontal gene transfer on genetic diversity in order to derive strategies for reducing the prevalence of resistance to antibiotics, for forming biofilms, for survival in the environment and for colonisation of the host.
2. The interdisciplinary research network **RoBoPub**, under the leadership of the Friedrich-Loeffler-Institut, is working on **strengthening public health by understanding the epidemiology of rodent-borne diseases**, specifically the hantavirus and leptospirosis. In this context, the BfR is investigating the occurrence, prevalence, host association, environmental stability and transfer of the pathogen *Leptospira kirschneri*. The knowledge gained is to be used to develop early warning modules, recommendations in the area of public health, and communication hereof.
3. **One Health interventions to prevent zoonotic spread of multidrug-resistant bacterial microorganisms** are the focus of research in the **#1Health-PREVENT** project, which is coordinated by the Münster University Hospital. Epidemiological studies on the zoonotic spread of bacterial pathogens with resistance to multiple antibiotics (MREs) as well as preventative interventions are carried out which are intended to prevent the transfer of MREs between animals and people or the natural selection of MREs. As part of this project, the BfR is investigating infectious udder inflammation (mastitis) through methicillin-resistant *Staphylococcus (S.) aureus* (MRSA), given the fact that the milk of infected cows could result in the transfer of multi-resistant pathogens to consumers. The aim of the project is to point out specific measures for intervention which are suitable for successfully preventing the spread of MREs.



Multi-resistant pathogens are at the focus of the project #1Health-PREVENT.



The EFSA project “Prediction of skin absorption” examines tools predicting the absorption of chemicals and substance mixtures.

The **German Research Foundation (DFG)** is funding two projects dealing with the toxicity of pyrrolizidine alkaloids at the BfR. Some common plants produce this group of plant substances which are toxic in some cases and can be found as contaminants in feed and in food products such as tea, herbal preparations and honey.

1. One of the projects is dedicated to the **investigation of hepatotoxic and genotoxic potential as well as metabolism of food-relevant pyrrolizidine alkaloids** in order to improve understanding of the strength of the toxic effect and the effects of metabolism on the toxicity.
2. The aim of the other project is the **identification of the structure-dependent toxicity of hepatotoxic pyrrolizidine alkaloids** in order to close the gaps in our knowledge on the bioavailability of the structurally different pyrrolizidine alkaloids.

Within the scope of the DFG-funded research group “**Severity assessment in animal-based research**”, the BfR is studying the **severity assessment from an animal's point of view** in a subproject. For this purpose, the decisions made by the animals in choice and preference experiments are used to make statements on the distress experienced by animals due to certain test arrangements. Furthermore, processes are developed allowing conclusions to be drawn on the emotional state of the animals in order to objectively measure in the future the effects of animal experiments causing distress on the emotional condition of the animals.

The research project **Applicability of *in silico* tools for the prediction of dermal absorption of pesticides (Prediction of skin absorption)** funded by the **European Food Safety Authority (EFSA)** is undertaking a critical examination of the existing *in silico* tools for the prediction of the absorption of chemicals and substance mixtures via the skin. The practical applicability and the benefits for use in EU approval procedures for plant protection products, in particular, will be considered as part of this project.

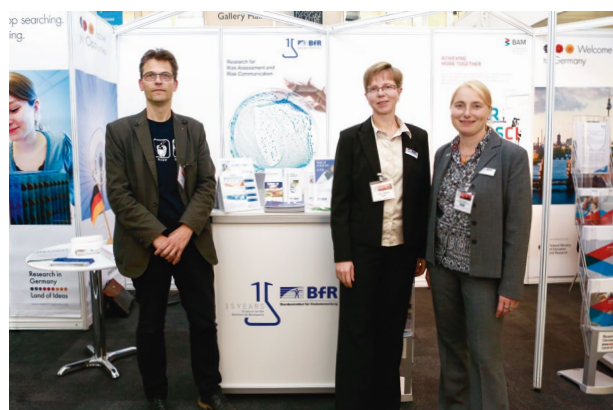
Personnel and training



The significant growth in personnel experienced at the BfR in 2016 continued in 2017. Over the course of the year, the number of employees increased from 855 to 941. Women make up 65 percent of the BfR staff. In addition to the operative work of the personnel unit, the work priorities in 2017 included attending national and international trade fairs to recruit staff, management feedback in the area of personnel development, the “step challenge” as a company health management measure, the further expansion of measures for balancing family and career, and new regulations for doctoral candidates at the BfR.

Staff recruitment: Trade fairs

The BfR was represented at national and international trade fairs once again in 2017 in order to present itself as an employer for junior scientists. In addition to the regular trade fair appearances at the jobvector career day in Berlin and the German Pharm-Tox Summit in Heidelberg, the BfR was also present at two international trade fairs – the naturejobs career expo in London and the GAIN conference in San Francisco – in order to increase awareness of the Institute abroad and to present it as an attractive employer for international scientists. Furthermore, the BfR took part in the Sticks & Stones trade fair in Berlin for the first time in 2017. Sticks & Stones is currently Europe's largest LGBTI career event (LGBTI stands for Lesbian, Gay, Bisexual, Transsexual/Transgender and Intersex).



The BfR presents itself at job fairs, like naturejobs career expo in London as shown here, in order to recruit junior scientists.

Personnel development: Management feedback

To evaluate and reflect upon management behaviour and cooperation with management, management feedback was conducted in October 2017. The feedback criteria queried were based on both the updated BfR guiding principles and the existing requirements profile for managers.

Criteria relating to the compatibility of career and family as well as equality aspects were perceived by employees as particular strengths of management. These include respectful and non-judgemental treatment of one another, irrespective of cultural background, consistent intervention in the event of discriminatory behaviour, and commitment to equal opportunities for women and men.

Company health management: Step competition “Every step counts”

In the context of company health management, the six-week BfR step competition, in which teams with 10 to 15 members competed against one another, took place from September to October 2017. The aim was to work together to incorporate more physical activity in everyday routines. The competition was a great success: Over the six weeks, 24 teams took a total of 139,397,499 steps. With an average of 11,439 steps per day, the participants significantly exceeded the recommendation of the World Health Organisation to take at least 10,000 steps per day.

The BfR promotes balancing work and family life and has therefore been certified as a family-friendly employer since 2009.

Balancing career and family: Making remote working possible

The BfR has been certified as a family-friendly employer by berufundfamilie Service GmbH since 2009. Once again in 2017, there was a strong demand for the compatibility measures offered and these measures were expanded further. The family service provider, who advises employees on childcare options, is one example of high demand for the measures: the use of this service more than doubled as compared to the previous year. The use of telework also increased again. There were further optimisations in the parent-child room, which can now also be used by grandparents. Moreover, since 2017, there has been a reintegration checklist for parents returning from family-related leave. The checklist is intended to support the agreement of individual measures on maintaining contact before and during parental leave and to ensure problem-free reintegration with respect to the compatibility of career and family. In addition, the technical conditions for remote working were established in 2017 and this is being offered as a further compatibility measure as of 2018.



The BfR facilitates remote working for parents.



PhD candidates: Supervision agreement and doctoral training programme

There have been several changes for PhD candidates at the BfR in 2017: Firstly, a supervision agreement will be concluded with each PhD candidate in the future which regulates the rights and responsibilities of the doctoral candidate and the supervisor. This contributes to a reliable and transparent supervision situation for both parties.

Secondly, as of April 2017, there is a doctoral training programme for all PhD candidates employed at the BfR. The programme promotes training of the PhD candidates to a high specialist and interdisciplinary level and increases the attractiveness of the BfR for vocational qualification of scientists. A common course programme and new class formats facilitate dialogue across disciplines and departments.

The doctoral training programme allows a great deal of choice and many different specialisations and takes the particularities of a doctorate at the BfR into consideration (e.g. cooperation with an external university, promotion of training in toxicology). As well as mandatory courses on presentation techniques and good scientific practice, the PhD candidates can choose elective courses, incorporate scientific activities (e.g. conferences and publications) and attend classes on networking and programme evaluation.

Points are awarded for the individual classes or modules in the doctoral training programme within the framework of the European Credit Transfer System (ECTS). This means that the programme can be compared with other doctorate programmes throughout Europe.

Training

The BfR provides training for the careers office management clerk, laboratory chemist, laboratory biologist, animal carer, IT specialist (for system integration) and plant and equipment mechanic (for sanitation, heating, air conditioning). In 2017, six apprentices completed their apprenticeships with results from good to very good. At the same time, eight people started apprenticeships at the BfR.



The BfR sees education and training as the essential elements for securing the future of our society.



Working at the BfR

Committed and motivated employees work at the BfR, who apply their specific knowledge and skills according to their area of responsibility and make the BfR an internationally recognised institute for consumer protection.






People with different careers and experiences come together at the BfR. The majority of the employees are from scientific disciplines such as medicine, veterinary medicine, pharmacology, biology, chemistry, biochemistry, food chemistry and nutritional sciences. Their work is characterised by cooperation, goal orientation, autonomy, loyalty and performance orientation.

Key data

How many scientists does the German Federal Institute for Risk Assessment employ? Which committees do they serve on? How does the institute finance itself? The answers to these questions are provided in the following chapter on the key data of the BfR. Unless indicated otherwise, the figures relate to the reporting year 2017.

Personnel



 Scientists	399
 Administrative staff	212
 Technical assistants	104
 PhD candidates	71
 Animal carers	23
 Apprentices/trainees	22
 Other	110

Participation in bodies

National	Number
Federal bodies	40
Federal government-federal state ("Laender") bodies	57
Bodies of the Federal Office of Consumer Protection and Food Safety (BVL)	29
Bodies of other institutions	115
Total number	241

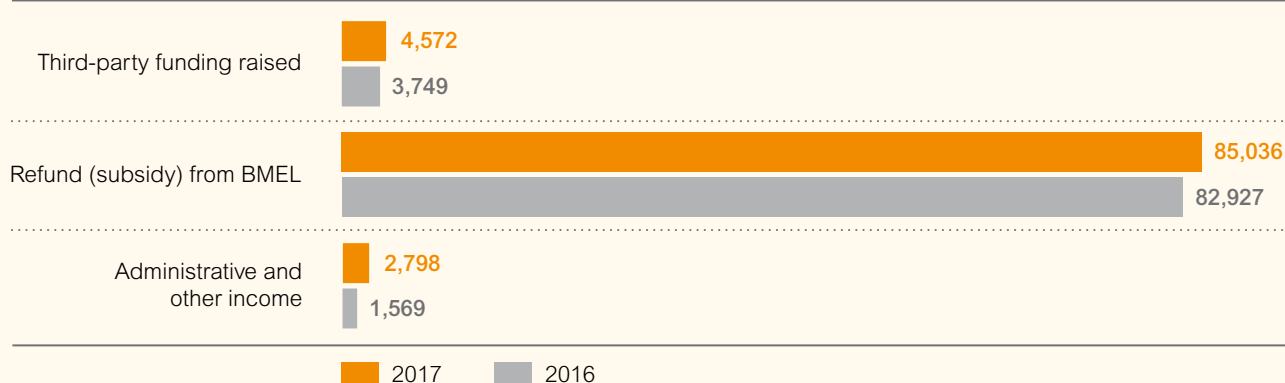
European level	Number
Bodies of the European Commission	46
Bodies of the European Food Safety Authority (EFSA)	43
Bodies of the European Chemicals Agency (ECHA)	12
Bodies of other European organisations	32
Total number	133

Worldwide	Number
WHO/FAO: Bodies of Codex Alimentarius	17
WHO/FAO: Other bodies	2
Bodies of other United Nations specialised agencies	8
OECD bodies	45
Other bodies involved in global standardisation activities	14
Total number	86

A total of **941** employees

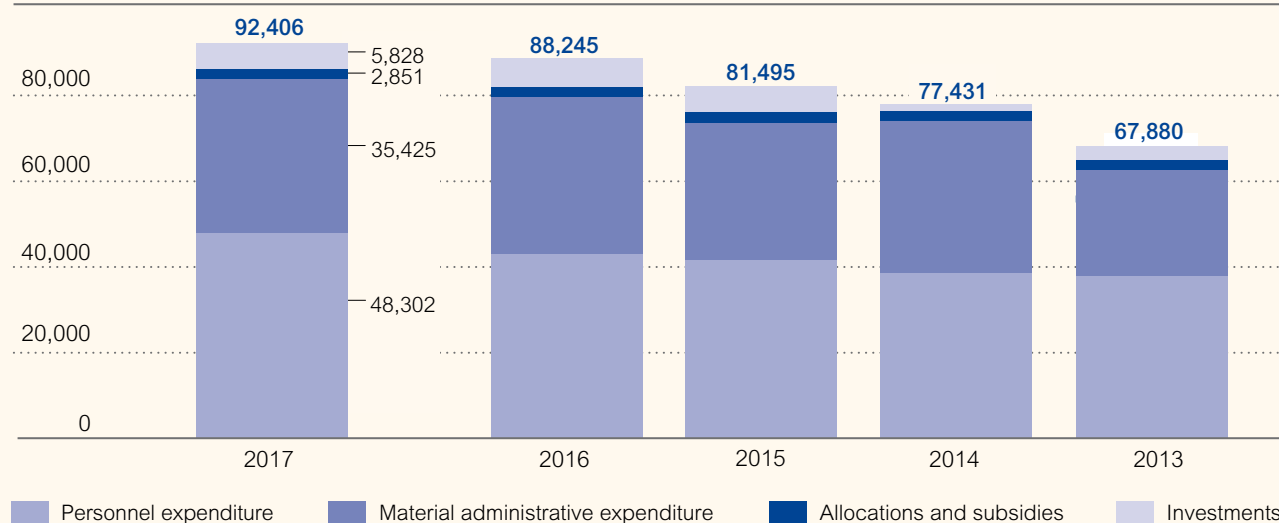
Budget

Income (in thousands of euros)



In 2017, the BfR spent approximately **92 million euros.**

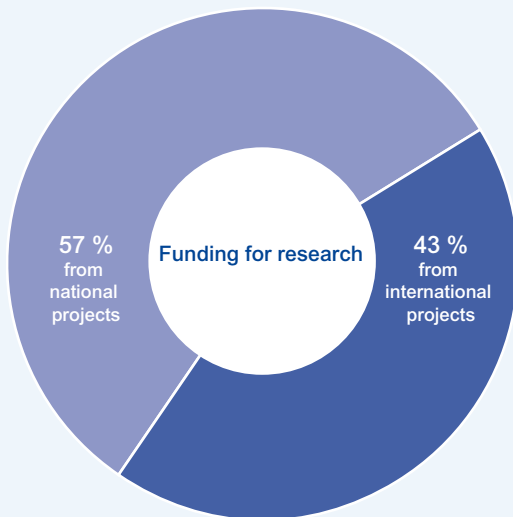
Expenditure (in thousands of euros)



Selected expenditure

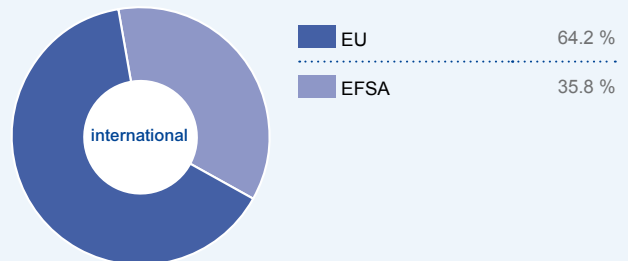
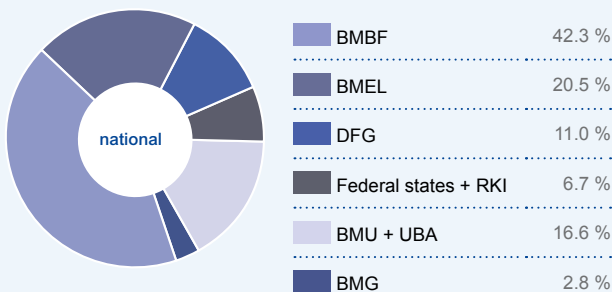
Scientific collections and libraries	473,498 €
Initial and further training	423,936 €
Public relations work, publishing and documentation	1,000,487 €
Conferences, trade fairs, exhibitions	217,176 €

Research



Funding for third-party projects in 2017 amounted to **4.5 million euro.** 43 percent of it went to international research projects.

Third-party projects	Number	Funding (figures in thousands)
International (EU, EFSA etc.)	35	1,984 €
National (BMBF, DFG, BMEL etc.)	39	2,588 €
Total	74	4,572 €

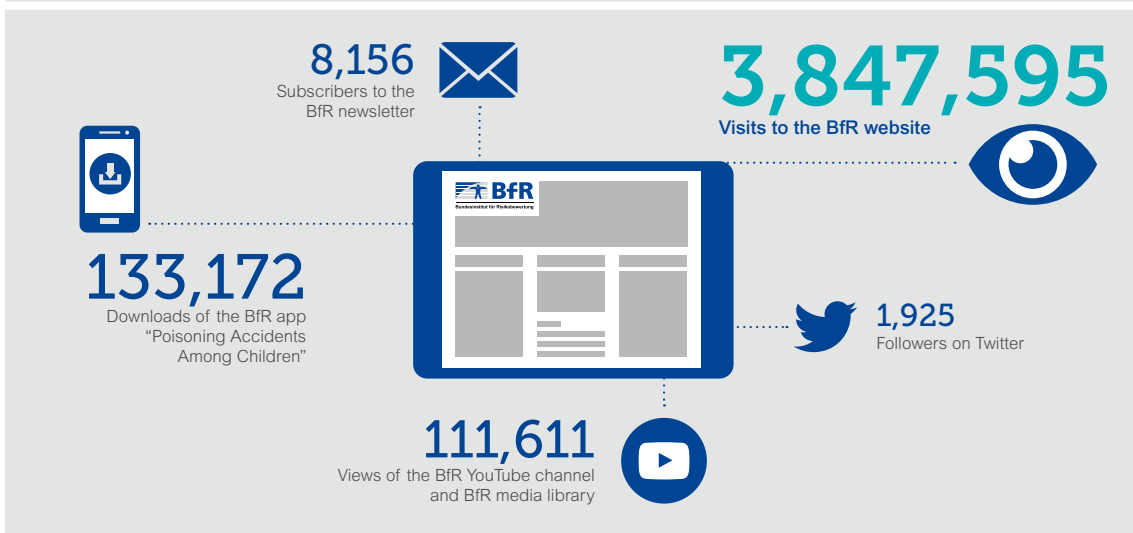
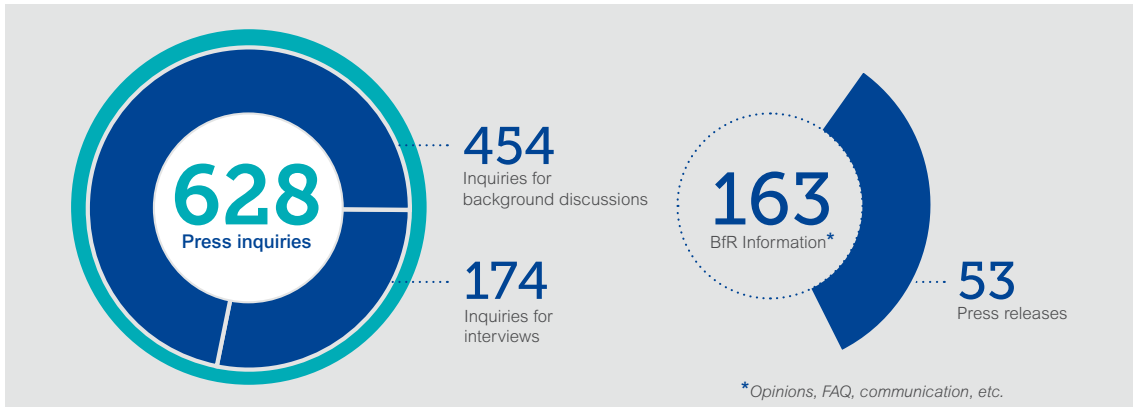


Publications

	Number
Book publications	3
Contributions to compilations	19
Articles in journals	204
Contributions to conference proceedings	138
Poster contributions	200
Presentations (conference speakers)	705
Dissertations/postdoctoral papers/master theses/ diploma theses/bachelor theses	51
Reports/EFSA	42

705 presentations were held in 2017.

Press activities of the BfR



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More information: www.bfr.bund.de/en

Opinions

The BfR opinions are risk assessment reports. They include the elements of a risk assessment, describe the uncertainties and the reasons for these uncertainties, and formulate aims and strategies for minimising the risk.

Expert opinions

Total number	3,440	
Assessments in legally prescribed procedures, e. g. authorisation procedures addressed to the Federal Office of Consumer Protection and Food Safety (BVL) or to the Federal Institute for Occupational Safety and Health (BAuA)	2,490	The 2,490 assessments in legally prescribed procedures include:
Expert opinions for supervisory federal ministries (BMEL, BMU, BMVI)	300	Assessments pursuant to pesticides legislation
Expert opinions in conjunction with international procedures (EU, OECD, WHO) for the assessment of chemical substances and testing methods, e. g. on alternatives to animal experiments	200	Opinions on chemicals pursuant to chemicals legislation (REACH)
Answers to scientific inquiries from EFSA and EFSA Focal Points of other Member States as well as requests for scientific opinions from EFSA	30	Assessments pursuant to biocides legislation
Other expert opinions for public authorities and courts outside legally prescribed procedures	160	Opinions on feed procedures stipulated in feed legislation
Other expert opinions, mainly for associations, citizens, NGOs	260	Opinions on exemptions from consumer protection provisions in food legislation, Arts. 54, 68 Food and Feed Code (LFGB)
		Other risk assessments in legally prescribed procedures

Note: The figures provide an impression of the type and scope of the expert opinions of the BfR in 2017. They are a representation of the OUTPUT. Due to the subjects and scientific quality, a small number of risk assessments can be more valuable for consumer protection than a large number of risk assessments. For this reason, the figures allow no or limited conclusions to be reached regarding the OUTCOME of the BfR.

The risk assessments of the BfR also always form part of the Institute's risk communication. They are published to suit each occasion or in crisis situations because unless there are confidentiality concerns, the BfR has a duty to communicate assessments of general public interest. In 2017, the following opinions were published among others.

Including selected opinions

27 March 2017 BfR No. 003/2017	Risk assessment of the occurrence of alkaloids in lupin seeds
25 April 2017 BfR No. 006/2017	Allergies: Sensitisation through permethrin in textiles is unlikely
29 May 2017 BfR No. 007/2017	Uncoated aluminium menu trays: First research results show high release of aluminium ions
27 June 2017 BfR No. 011/2017 (updated)	Wild boar meat can contain Duncker's muscle fluke
29 June 2017 National Breastfeeding Committee	Positive messages for undisturbed breastfeeding in public
10 July 2017 BfR No. 013/2017	Grass and leaf products for consumption may be contaminated with human pathogen bacteria
18 July 2017 BfR No. 014/2017	Germs in shower gel
30 July 2017 BfR No. 016/2017	Health assessment of individual measurements of fipronil levels detected in foods of animal origin in Belgium
7 September 2017 BfR No. 025/2017	Suffocation risk from small hard sugar balls
11 September 2017 BfR No. 026/2017	Botulism risk through salted and dried roach
13 September 2017 BfR No. 027/2017	Risk-benefit analysis of nationwide supplementation of flour with folic acid
20 September 2017 BfR No. 029/2017	<i>Salmonella</i> Control Programme – results for the year 2015
2 November 2017 BfR No. 032/2017	Food supplements with whole-leaf aloe preparations containing anthranoids are associated with health risks
12 December 2017 BfR No. 034/2017	BfR assesses recommended maximum daily level for intake of magnesium via food supplements

Events

The BfR celebrated 15 years of existence in 2017. To mark this occasion, a large number of anniversary events took place. In addition to the celebrations, there were of course more scientific dialogue and information events as well as several training courses for disseminators.

i More information: www.bfr.bund.de/en > Events



20 to 29 January 2017

The BfR at International Green Week in Berlin

"Breakfast at the BfR – with certainty!" was the BfR's booth motto for ten days at the International Green Week 2017. Each day, experts from the BfR were available to answer consumers' questions relating to consumer health protection. Information was provided on the correct storage of food in the fridge and the health risks of caffeine, harmful plant substances that can occur as contaminants in honey and tea, and *salmonella* and viruses in raw sausage. Other topics ranged from hygiene rules when handling eggs to the risk of acrylamide in toast. Interactive elements of the booth included the butter ping-pong plate and the quiz wheel.



29 to 31 March 2017

Training event for the public health service

The three-day event in cooperation with the Robert Koch Institute and the German Federal Environment Agency for the public health service took place once again in 2017. Over 400 professionals from the public health service took advantage of the opportunity to participate in discussions with employees from the three institutes holding the event.



BfR-Summer Academy

34 experts from 20 countries – from Asia, Europe, South America and Africa – took part in the sixth BfR-Summer Academy. Over the two weeks, the participants and speakers dealt with the principles of risk assessment and risk communication. In addition to talks, workshops took place in which topics were addressed in depth and methods were applied in practice.



3 to 14 July 2017



26 to 27 August 2017



The BfR attended the Open Day at the German Federal Ministry of Food and Agriculture

On the Open Day in the courtyard of the German Federal Ministry of Food and Agriculture (BMEL) in 2017, the BfR presented itself with the slogan “Safely cool” and explained the risks involved in incorrect cooling during transport and storage of foods to the visitors to the booth.



Information events

Further training courses

Scientific dialogue



29 September 2017

BfR School Kids' University

On the occasion of its 15th anniversary, the German Federal Institute for Risk Assessment (BfR) organised a BfR School Kids' University for high school students in Berlin. In the historic Kopsch lecture hall of the Charité university hospital, BfR scientists entered into dialogue with the students on kitchen hygiene errors, the dangers of nicotine and tobacco, and health risks of cosmetic products and tattoos. There was also lively debate on animal testing and alternative methods.



29 November 2017

BfR anniversary ceremony celebrating 15 years of existence

On 29 November, the BfR held an anniversary ceremony celebrating 15 years of existence in the Academy of Arts on Pariser Platz in Berlin. Not only the founders of the BfR, but also delegates of national and international sister authorities and cooperation partners were invited to this ceremony.



Joint international symposium with sister authorities from South Korea, France and Denmark

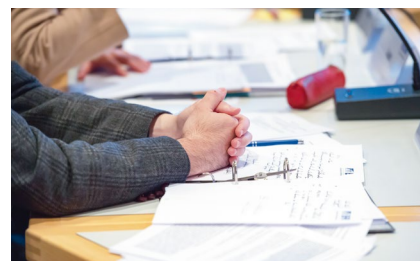
A joint event with the sister authorities NIFDS (South Korea), ANSES (France) and DTU (Denmark) took place in the context of the BfR anniversary. The topic of the two-day symposium was past and future challenges in consumer protection at both a national and an international level.



30 November to 1 December 2017



4 December 2017



Mineral oil at the focus of consumer health protection

Consumers are frequently exposed to products containing mineral oil in their everyday lives. This is currently the subject of intensive discussions in the public sector. The 17th BfR consumer protection forum focused on the current state of knowledge on the analytics, identity and toxicology of mineral oil components in different regulatory areas such as food, food contact materials, cosmetic products, REACH and CLP.

7 to 8 December 2017



2nd BfR Science Slam

The second BfR Science Slam also took place in the context of the BfR anniversary. A total of five BfR scientists faced the judgement of the audience by presenting their research and scientific issues in an amusing and entertaining manner.



Every year, the **BfR Academy** arranges a large number of events relating to topics from the BfR's field of work. The aim is to promote communication with different target groups and to provide information on the BfR's assessments and research results. In 2017, a total of 164 events took place at the BfR.

i More information: www.bfr-akademie.de/english

Information events

Further training courses

Scientific dialogue

Third-party funded projects

Research on authenticity testing of food and feed

Time period	Acronym	Topic
05/2016–04/2019	Animal-ID	Development and validation of innovative methods for tracing and authentication of animal proteins in food and feed
09/2016–09/2019	FoodAuthent	Development of a system for the collection, analysis and exploitation of product authenticity data in the food sector

Research on the safety of national and international supply chains

Time period	Acronym	Topic
12/2013–11/2018	EFFORT	Ecology from Farm to Fork Of microbial drug Resistance and Transmission
01/2014–12/2018	Food Integrity	Ensuring the Integrity of the European Food Chain
03/2016–02/2020	MyToolBox	Safe Food and Feed through an Integrated ToolBox for Mycotoxin Management
05/2016–04/2019	Ess-B.A.R.	Food safety and resilience of food supply chains in biohazard situations
08/2017–03/2018	Field study supply chains (NRW Warenströme)	Project cooperation between BfR and LANUV NRW for the continuous traceability of products
07/2016–08/2019	SAD-Zambia	<i>Staphylococcus (S.) aureus</i> in the dairy food chain in Zambia – combating foodborne disease and antimicrobial resistance in humans
01/2017–12/2019	AGINFRA+	Accelerating user-driven e-infrastructure innovation in food and agriculture
03/2017–04/2019	Risk Assessment Tools	Risk assessment tools for the safety of global food and feed supply chains
09/2017–08/2021	EU-China-Safe	Delivering an effective, resilient and sustainable EU-China food safety partnership

Research on human, animal and environmental health (One Health)

Time period	Acronym	Topic
08/2017–07/2020	RoBoPub	Strengthening public health by understanding the epidemiology of rodent-borne diseases
09/2017–08/2020	#1Health-PREVENT	One Health interventions to prevent zoonotic spread of antimicrobial multidrug-resistant bacterial microorganisms
09/2017–08/2020	PAC-CAMPY	Preventing and combating <i>campylobacter</i> infections: on track towards a One Health approach

Further information
BMEL (FKZ: 2816503514)
BMEL (FKZ: 2816502914)

Further information
EU (613754) www.effort-against-amr.eu
EU (613688)
EU (678012) www.mytoolbox.eu
BMBF (FKZ: 13N13982)
Federal states
BMEL support programme: World food affairs BLE (FKZ: 2815DOKP04)
EU (731001) www.plus.aginfra.eu
EFSA (GP/EFSA/AMU/2016/01)
EU (727864)

Further information
BMBF (FKZ: 01KI1721B)
BMBF (FKZ: 01KI1727C)
BMBF (FKZ: 01KI1725B)

Abbreviations/acronyms

BfG:	German Federal Institute of Hydrology
BLE:	German Federal Office for Agriculture and Food
BMBF:	German Federal Ministry of Education and Research
BMEL:	German Federal Ministry of Food and Agriculture
BMG:	German Federal Ministry of Health
BMU:	German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety
DFG:	German Research Foundation
EFSA:	European Food Safety Authority
EU:	European Union
FKZ:	Funding number
GZ:	Reference number
LANUV:	North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection
NRW:	North Rhine-Westphalia
RKI:	Robert Koch Institute

Research on exposure estimation and assessment of biological risks

Time period	Acronym	Topic
01/2014–04/2018	MedVet-Staph 2	MedVet-Staph interdisciplinary research network on the zoonotic impact of <i>staphylococcus aureus</i> /MRSA
01/2014–04/2017	RESET 2	RESET II joint project: ESBL and (fluoro)quinolone resistance in <i>Enterobacteriaceae</i>
06/2015–05/2018	NutriAct	Nutritional intervention for healthy aging: food patterns, behaviour, and products
11/2015–11/2018	EsRAM	Development of reduction measures across all stages for antimicrobial-resistant pathogens in fattening poultry
01/2016–01/2018	ENGAGE	New approaches in identifying and characterising microbiological and chemical hazards
01/2010–12/2019	Leptospirosis	Consiliary laboratory for leptospirosis – Studies on the occurrence of leptospirosis in small mammals
03/2016–02/2019	Rotaviruses	Characterisation of the zoonotic potential of poultry rotaviruses
04/2016–03/2019	CAMPY-TRACE	Combined live/dead discrimination and real-time PCR approach for the quantitative risk assessment of viable <i>Campylobacter</i> applicable in international control strategies
01/2017–12/2018	MolTypList	Molecular typing of <i>Listeria monocytogenes</i> in food as basis for an efficient risk assessment and control of listeriosis in Germany
07/2017–06/2018	Vegan diet	Vegan diet and bone health
01/2017–10/2018	Vibrios	Development of an early warning and information system for the occurrence of vibrios in coastal bathing waters

Research on the detection of contaminants and for the assessment of chemical risks

Time period	Acronym	Topic
05/2015–05/2019	EuroMix	European Test and Risk Assessment Strategies for Mixtures (EuroMix)
04/2016–04/2020	EuroCigua	Risk characterization of ciguatera food poisoning in Europe to determine the incidence and epidemiological characteristics of ciguatera cases in Europe
08/2016–10/2018	REACH III	Availability of health and environmental data for high tonnage chemicals under REACH

Research on modern methods in toxicology

Time period	Acronym	Topic
07/2015–06/2018	Okadaic acid	Molecular characterisation of toxicological properties of the marine biotoxin okadaic acid in <i>in vitro</i> models for the human intestinal barrier and liver
12/2015–12/2018	PFOA	Molecular mechanisms of the toxicity of perfluorooctanoic acid (PFOA)
10/2017–09/2020	Gastrointestinal barrier	Interaction of metabolism and transport of toxicological relevant compounds in the gastrointestinal barrier
06/2017–05/2020	PA1	Identification of the structure-dependent toxicity of hepatotoxic pyrrolizidine alkaloids
06/2017–05/2020	PA2	Investigation of hepatotoxic and genotoxic potential as well as metabolism of food-relevant pyrrolizidine alkaloids
06/2017–06/2018	Prediction of skin absorption	Applicability of <i>in silico</i> tools for the prediction of dermal absorption of pesticides

Further information
BMBF (FKZ: 01KI1301C)
BMBF (FKZ: 01KI1313B)
BMBF www.nutriact.de
BMEL (FKZ: 2817701614)
EFSA (GP/EFSA/AFSCO/2015/01/CT1)
RKI (FKZ: 1369-365)
DFG (GZ: JO369/4-3)
BMBF (FKZ: 031B0054A)
BMG (FKZ: GE20160326)
Elsbeth Bonhoff Foundation (project no.: 167)
BfG (part of a BMU project with FKZ: 3716622030)

Further information
EU (633172) www.euromixproject.eu
EFSA (GP/EFSA/AFSCO/2015/03)
BMU (FKZ: 3716674220)

Further information
DFG (GZ: LA1177/11-1)
DFG (GZ: LA1177/10-1), DFG (GZ: BU3060/1-1)
DFG (GZ: LA1177/4-4)
DFG (GZ: LA1177/12-1)
DFG (GZ: TH1925/2-1)
EFSA (OC/EFSA/PRAS/2016/02)

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FKZ:	Funding number
GZ:	Reference number
LANUV:	North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection
NRW:	North Rhine-Westphalia
RKI:	Robert Koch Institute

Research to harmonise and standardise assessments of exposure

Time period	Acronym	Topic
04/2015–01/2017	LiquiTabs	Study on hazardous detergent mixtures contained in soluble packaging for single use
01/2016–12/2021	Tender Animal feeding	Determination of pyrrolizidine alkaloids in feed materials and compound feed by LC-MS/MS
12/2016–08/2018	FOODEX 2	Database of processing techniques and processing factors compatible with the EFSA food classification and description system
04/2017–11/2018	National poisoning monitoring	Pilot study to establish national poisoning monitoring
01/2017–12/2021	HBM4EU	European Human Biomonitoring Initiative
09/2017–06/2021	LIFE VERMEER	Integrating VEGA, toxRead, MERLIN-Expo and ERICA into a single platform for risk assessment and substitution of risky substances

Research on alternatives to animal experiments

Time period	Acronym	Topic
04/2014–03/2018	BB3R	Innovations in the 3R Research – Genetic Engineering, Tissue Engineering and Bioinformatics
07/2017–06/2020	Severity assessment	Severity assessment from an animal's point of view
04/2016–03/2018	Cognitive dysfunction	Cellular mechanisms of critical illness-induced cognitive dysfunction
02/2017–01/2020	LivSys-Transfer	Transfer of the LivSys <i>in vitro</i> system for hepatotoxicity into application
01/2017–12/2019	Combiomics 2	Investigation of mixture effects of pesticides <i>in vitro</i>

Research on functional analytics and early risk detection

Time period	Acronym	Topic
05/2017–04/2022	SafeConsumeE	Safer food through changed consumer behaviour: Effective tools and products, communication strategies, education and a food safety policy reducing health burden from foodborne illnesses
04/2017–04/2020	DEMETER	Determination of metrics of emerging risk

Research on feed safety

Time period	Acronym	Topic
01/2014–03/2019	Tender melamine	Determination of melamine in feed by LC-MS/MS
06/2015–12/2018	Tender mycotoxin	Foodstuffs – Determination of T-2 and HT-2 toxin in cereal based foods for infants and young children by LC-MS/MS

	Further information
	EU (705912)
	EU (2013-12)
	EFSA (GA/EFSA/PRAS/2016/01)
	BMU (FKZ: UM17653010)
	EU (733032) www.hbm4eu.eu
	EU (LIFE16 ENV/IT/000167)

	Further information
	BMBF (FKZ: 031A262D) www.bb3r.de
	DFG (GZ: LE2356/5-1)
	Federal states (Einstein-Foundation: A-2014-223)
	BMBF (FKZ: 031L0119C)
	BMBF (FKZ: 031L0118A)

	Further information
	EU (727580)
	EFSA (GP/EFSA/AFSCO/2016/01)

	Further information
	CEN (SA/CEN/ENTR/522/2013-11)
	CEN (SA/CEN/ENTR/520/2013-17)

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BMG:	German Federal Ministry of Health
BMU:	German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety
DFG:	German Research Foundation
EFSA:	European Food Safety Authority
EU:	European Union
FKZ:	Funding number
GZ:	Reference number
LANUV:	North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection
NRW:	North Rhine-Westphalia
RKI:	Robert Koch Institute

Research on nanotechnology: detection, toxicology, risk assessment and risk perception

Time period	Acronym	Topic
03/2013–02/2017	NANoREG	A common European approach to the regulatory testing of nanomaterials
11/2013–10/2017	NanoDefine	Development of methods and standards supporting the implementation of the Commission recommendation for a definition of a nanomaterial
10/2014–09/2017	DENANA	Design criteria for sustainable nanomaterials
04/2014–06/2018	SolNanoTOX	Determining factors of the toxicity in intestine and liver for two similar sized nanoparticles used in food and packaging: <i>In vitro</i> and <i>in vivo</i> investigation on uptake and mechanisms involved
12/2015–11/2018	NanoToxClass	Establishing nanomaterial grouping/classification strategies according to toxicity and biological effects for supporting risk assessment
05/2015–04/2018	nanoGRAVUR	Nanostructured materials – Grouping for occupational health and consumer and environmental protection and risk mitigation
09/2015–08/2018	NANoREG 2	Development and implementation of Grouping and Safe-by-Design approaches within regulatory frameworks
05/2016–04/2019	NANOaers	Fate of aerosolised nanoparticles: The influence of surface-active substances on lung deposition and respiratory effects
07/2017–06/2019	NANOHEPATOX	Assessment of potential synergistic or antagonistic toxicity mechanisms during co-exposition of <i>in vitro</i> models towards cerium dioxide nanoparticles and environmental chemicals/pharmaceuticals
01/2017–12/2020	ACEnano	Analytical and Characterisation Excellence in nanomaterial risk assessment: A tiered approach

Scientific cooperation

Time period	Acronym	Topic
01/2014–12/2017	EFSA focal point	Germany's national focal point on technical and scientific matters
09/2017–08/2018	Fellow Hosting GA3	Application of data science in Risk Assessment and Early Warning
09/2017–08/2018	Fellow Hosting GA4	Identification and evaluation of potentially mutagenic and carcinogenic heat-related contaminants in food
09/2017–08/2018	Fellow Hosting GA5	Risk Assessment of plants and plant preparations in food
09/2017–08/2018	Fellow Hosting GA6	Risk Assessment of substances used in food supplements and fortified foods
04/2017–05/2018	Data Quality	Strategic Partnership with Germany on Data Quality (Pilot project)
01/2016–12/2018	VET-Twin	Strengthening of scientific excellence of the Polish "National Veterinary Research Institute in animal health and food chain safety"
03/2017–06/2018	Endocrine Disruptors	Grant for supporting EFSA in preparing guidance on endocrine disruptors

i **Additional information on the projects at**
 Federal Institute for Risk Assessment: www.bfr.bund.de/en > Research > Third party projects of the BfR
 Information System for Agriculture and Food Research: www.fisaonline.de > English
 BMEL research database (in German): www.bmel-forschung.de

	Further information
	EU (310584) www.nanoreg.eu
	EU (604347) www.nanodefine.eu
	BMBF (FKZ: 03X0152E)
	DFG (GZ: LA3411/1-1) DFG (GZ: LA1177/9-1)
	BMBF (FKZ: 03XP0008A) www.nanotoxclass.eu
	BMBF (FKZ: 03XP0002D)
	EU (646221) www.nanoreg2.eu
	BMBF (FKZ: 03XP0064A) www.nanoaers.eu/index.html
	BMBF (FKZ: 01DH17052)
	EU (720952)

	Further information
	EFSA www.efsa.europa.eu/de/networks/fp.htm
	EFSA (GP/EFSA/AFSCO/2016/02 – GA 3)
	EFSA (GP/EFSA/AFSCO/2016/02 – GA 4)
	EFSA (GP/EFSA/AFSCO/2016/02 – GA 5)
	EFSA (GP/EFSA/AFSCO/2016/02 – GA 6)
	EFSA (GP/EFSA/DATA/2017/01 – GA 04)
	EU (692131)
	EFSA (GP/EFSA/PRAS/2017/01)

Abbreviations/acronyms

BfG:	German Federal Institute of Hydrology
BLE:	German Federal Office for Agriculture and Food
BMBF:	German Federal Ministry of Education and Research
BMEL:	German Federal Ministry of Food and Agriculture
BMG:	German Federal Ministry of Health
BMU:	German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety
DFG:	German Research Foundation
EFSA:	European Food Safety Authority
EU:	European Union
FKZ:	Funding number
GZ:	Reference number
LANUV:	North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection
NRW:	North Rhine-Westphalia
RKI:	Robert Koch Institute

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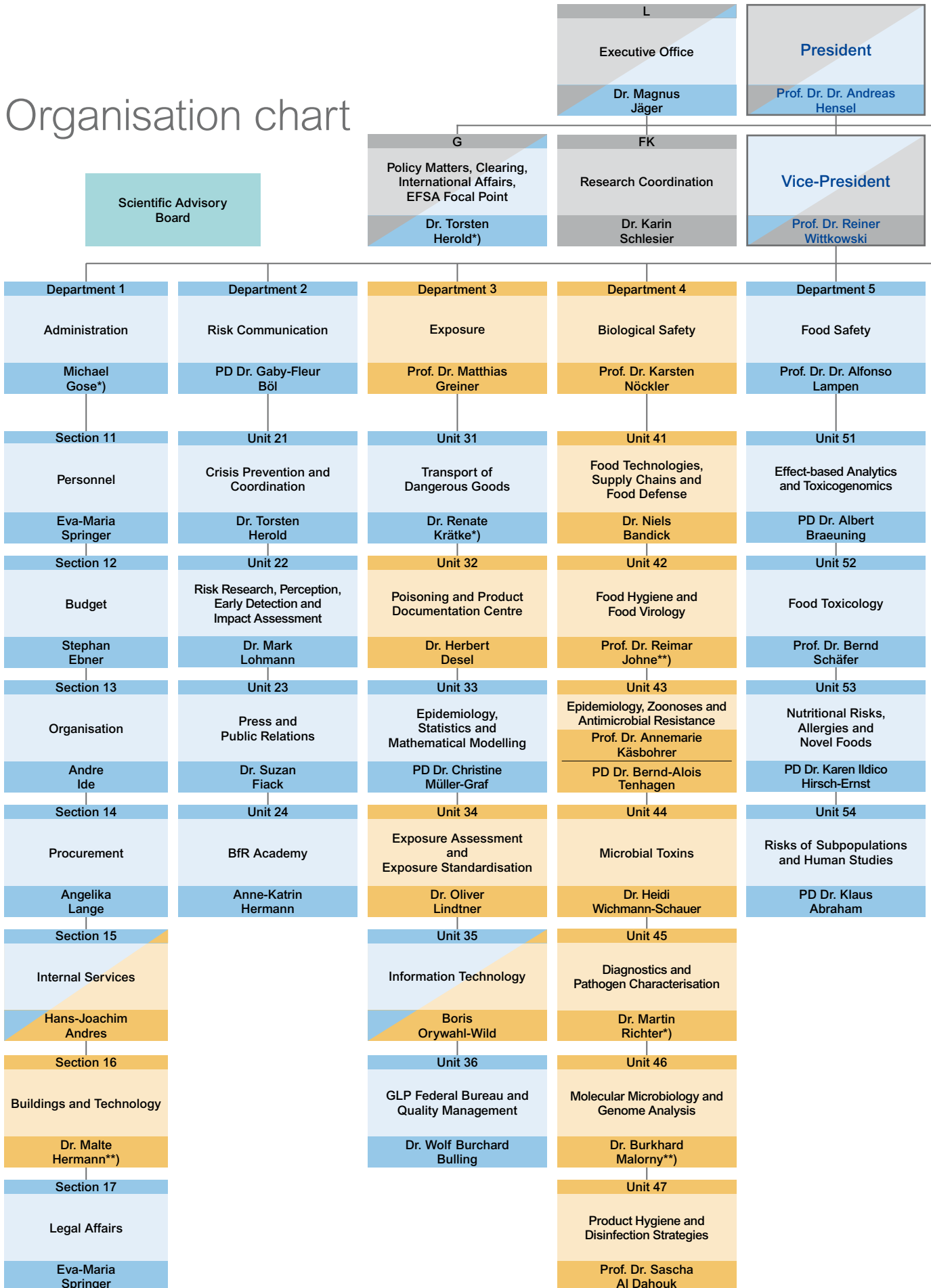
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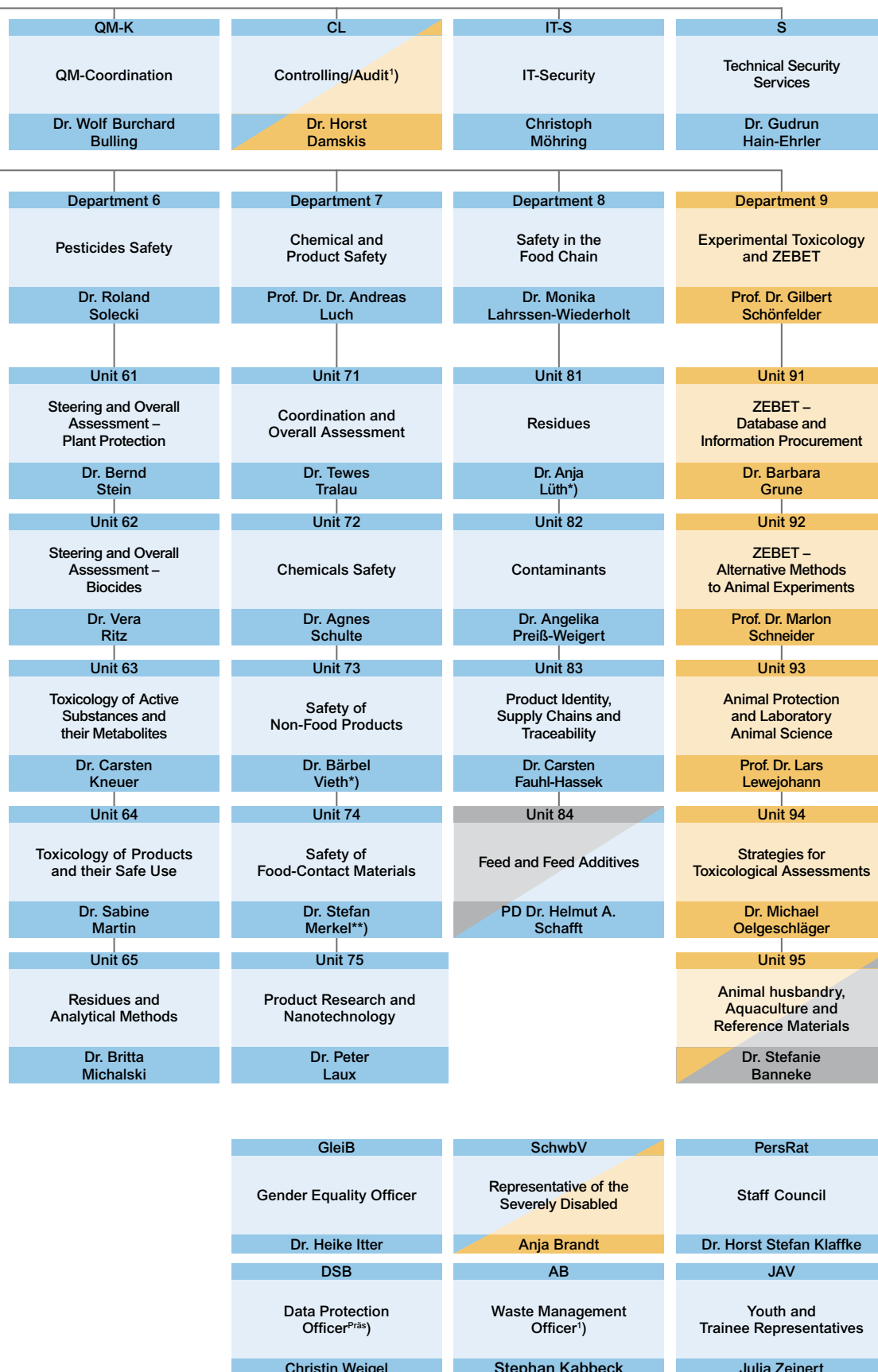
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) Reporting

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