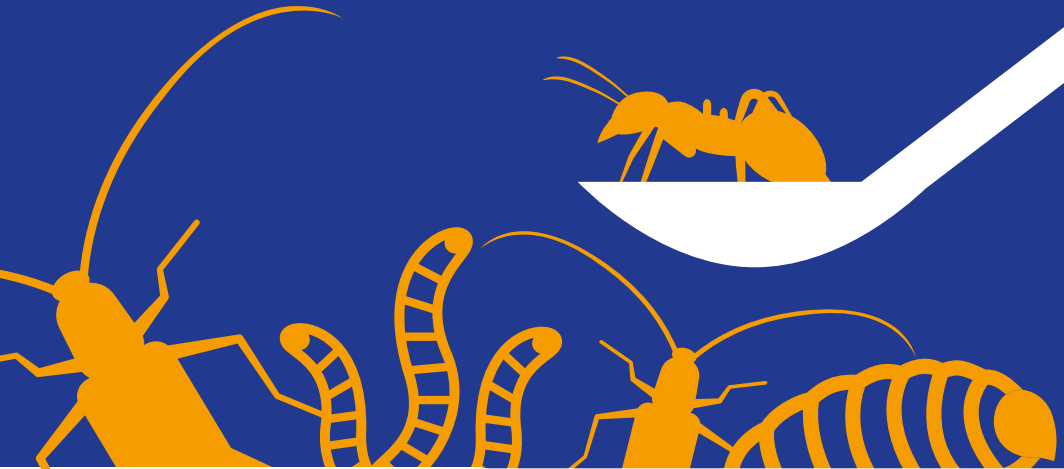


Insects as Foods and Feeds



Bundesinstitut für Risikobewertung

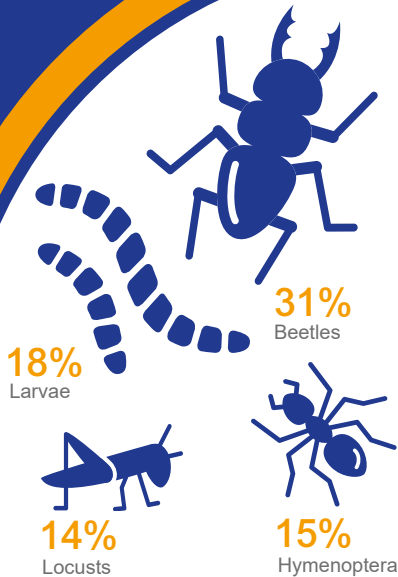
BfR Risk Perception Research

Africa, Asia, America – crickets, mealworms and locusts are boiled, fried and eaten in many regions of the world. Although insects are not typically consumed in Europe, public discussion is starting up about the possibility of breeding and processing insects industrially as foods and animal feeds.

A representative consumer survey conducted at the German Federal Institute for Risk Assessment (BfR) gives insight into the level of awareness, as well as the expected benefits and risks of eating insects. A media response analysis focuses on the presentation of insects in the German media.

In this brochure, you will find important background information and essential results of both studies as well as the recommendations for courses of action with respect to risk communication the studies gave rise to.

Insects – The food of the future?



MORE THAN
2,000

insect species are
eaten regularly

These are mainly beetles, insect larvae, hymenoptera (bees, wasps, ants), locusts, crickets and grasshoppers, along with other insects (termites, diptera such as flies and their larvae).



Many edible insect species are rich in energy and nutrients, with high levels of amino acids and unsaturated fatty acids which are essential for humans. Insects also contain plenty of micro nutrients, depending on species, age and diet.

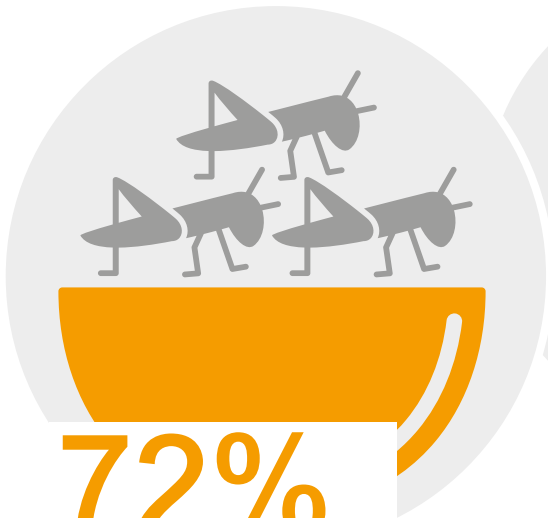
Due to this favourable nutrient composition, insects are being discussed as an alternative to conventional foods of animal origin.

Eating insects – is that allowed?

All insects or products containing insects that are to be marketed as foods in the EU must first undergo health assessments by the European Food Safety Authority (EFSA) prior to authorisation. The basis for this is the Novel Food Regulation (EU) 2015/2283.

Results of the BfR consumer survey

How well-known are edible insects?



of respondents know about insects as

foods



60%

of respondents know about insects as

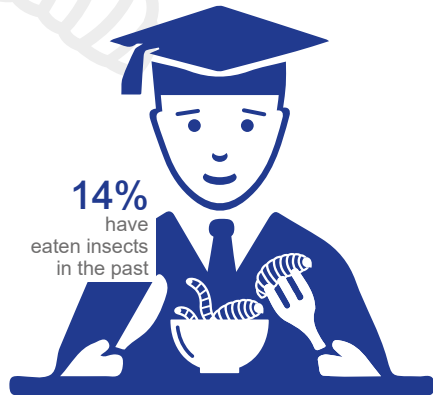
feeds

Basis: As a percentage of all respondents, n = 1,000

Approximately 14 percent of all respondents have consumed insects in the past, mainly abroad. The majority of them were males aged 18 to 39 with a high level of education.

Younger people in particular approve of insects as foods.

However, the majority of those who have never eaten insects remain sceptical.



Only 40 percent
can imagine trying
insect-based foods.*

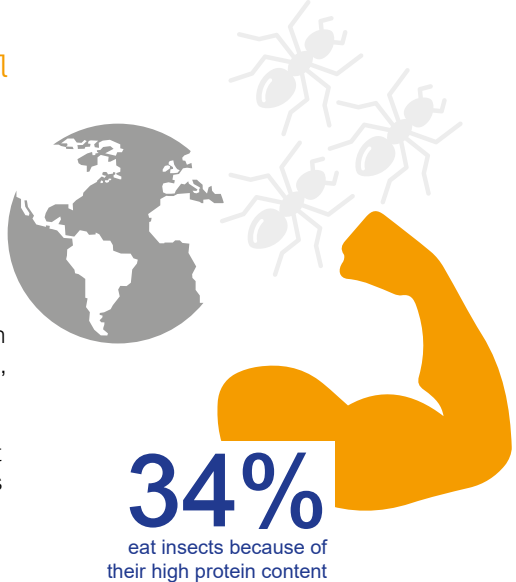
* Basis: Percentage of all respondents who have never eaten insects, n=861

Results of the BfR consumer survey

What are the advantages and disadvantages of edible insects?

Although there is general scepticism about eating insects, consumers are well-informed about the advantages.

34 percent of respondents give the high protein content as a reason for consuming insects. Furthermore, insects are attributed a decisive role for the future of global nutrition (17%), while the expense and effort associated with insect husbandry is seen as low (13%).



Dislike is the biggest obstacle to the introduction of insects as foods.



46%

report feelings of disgust
are the main obstacle

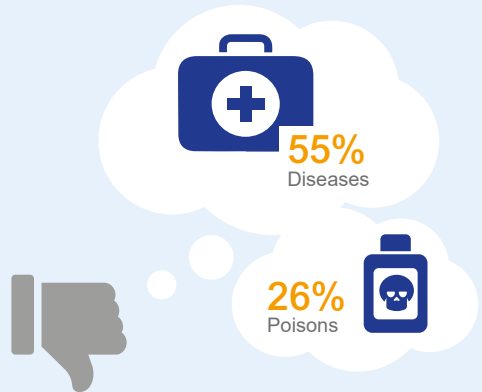
The main barrier reported is a feeling of disgust, though there are also concerns about hygiene and digestibility (15%) and the strangeness of using the animals as an unusual source of nutrition (13%).



Results of the BfR consumer survey

Are reservations about edible insects predominant?

Despite various reservations about eating insects, the majority believe that it does not pose a risk to the health of humans or animals (63%).

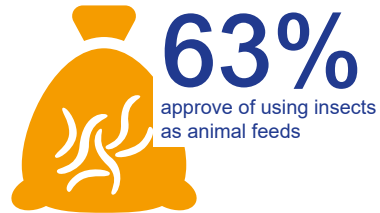


Among the suspected risks for humans and animals, concerns about the transmission of diseases, poisons as well as allergies and intolerances (17%) are mentioned most frequently.*

* Basis: Percentage of all respondents who see a risk, n=270

How should insects be used?

The population is divided about using insects as foods: 47 percent of respondents approve of their use as food for humans, while 48 percent disapprove.

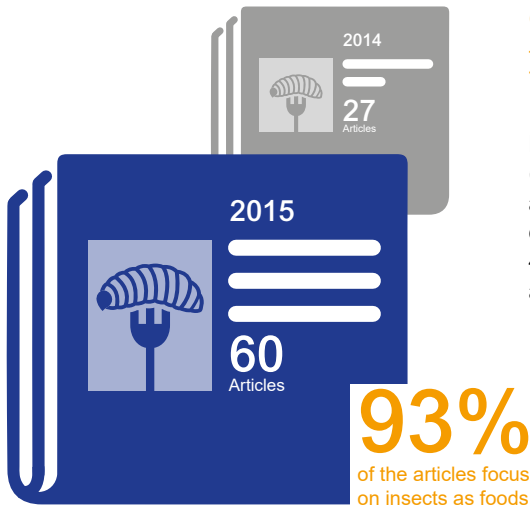


The majority of respondents approve of the use of insects as animal feeds. Only 27 percent are against using insects as a feedstuff.

Results of the BfR media analysis

How do the media report on edible insects?

Reporting on the subject “Edible Insects” more than doubled from 2014 to 2015.



The majority of analysed articles dealt with the beneficial aspects (80%). Only 18 percent mentioned possible risks.

Most articles focus on insects as foods (93%). Only 4 percent of the analysed articles deal exclusively with the topic of insects as animal feeds, while another 4 percent of the reports mention both aspects of the use of insects.

PAPERS

**60%**

Protein content

**39%**

Global food problem

**32%**

Feed conversion efficiency

**28%**

Micro nutrients

**24%**

Fewer greenhouse gases

A clear majority of all analysed articles comment on the high protein content of insects (60%). Their use as a possible approach to solving the global food problem is the second most commonly mentioned benefit (39%), followed by high feed conversion efficiency (32%). Other aspects reported on are micro nutrients (28%) and the low emission of greenhouse gases (24%).

Findings for risk communication

The results allow for inferences about suitable recommendations for courses of action.



There is a need for information on the subject of edible insects among the general public. In particular, there should be more information on the possible health risks of insects as foods and feeds (70%), on the production process (65%) and on the nutrient content (64%).



Information on processing and possible health risks could increase public acceptance of insect consumption. Insects “made unrecognisable” in the form of processed foods would also tend to meet with more acceptance than insects in their original state.

The results of this study show that the majority of Germans do not believe that insects will be established as a regular part of their diet in the medium term. They are more optimistic about insects as feeds for livestock.

BfR study “Edible Insects”

Subproject 1

Representative population survey: How does the general public perceive insects as foods and feeds?

Methodology

Representative consumer survey by means of random sampling per telephone

Study period

April 2016

Sample

1,000 respondents from the German-speaking population in Germany aged 14 years and over

Subproject 2

Media analysis: How and to what extent is the topic of insects as foods and feeds reported on in a selection of German print and online media?

Methodology

Analysis of the content of German print and online media

Study period

April 2014 to December 2015

Sample

A total of 87 articles in various print and online media (supra-regional newspapers of record, selected Berlin newspapers, weekly newspapers/magazines) were analysed with regard to the type and frequency of reporting on edible insects.

About the BfR

Do nanoparticles promote the occurrence of allergies? Does apple juice contain harmful aluminium? The German Federal Institute for Risk Assessment (BfR) evaluates the possible health risks of food and feed, consumer products and chemicals. Its work makes an important contribution towards ensuring that food, products and chemicals are becoming safer in Germany. The institute is independent in its scientific evaluations, research and communication. It is the scientific establishment of the Federal Republic of Germany which prepares reports and opinions on issues of food and feed safety and on the safety of substances and products. The institute therefore performs an important task in improving consumer health protection and food safety. The BfR belongs to the portfolio of the Federal Ministry of Food and Agriculture (BMEL).



More information

BfR symposium “Insects as foods or feeds: Food of the future?”
Report on the symposium on 24 May 2016. *Journal für Verbraucherschutz und Lebensmittelsicherheit* (Journal for Consumer Protection and Food Safety), September 2016, Volume 11, Issue 3, pp 281–289

Regulation (EU) 2015/2283 of the European Parliament
and of the Council

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Insects as foods and feeds

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