

## Insects – soon to be a regulated food?

There is increasing interest in the EU – as in other parts of the world – about how to make use of insect protein in animal feed and human food. While most EU Member States have forbidden the use of insects as human food, others have adopted a more flexible approach, allowing some products on their markets. Until now, EU legislation on insects for human food had had an uncertain stance, but the revised Regulation on novel foods will change this.

### Background

The United Nations Food and Agricultural Organization (FAO) [estimates](#) that the world needs to increase its food production by 70% by 2050, to feed a global population of over 9 billion. Nearly 80% of the world's agricultural land is already being [used for grazing and feeding](#) farmed animals, and global [meat consumption](#) is expected to increase by 26% from 2007 to 2050, with developing countries accounting for 80% of the growth. Fish production may need to increase by 50% above 2006 levels to meet predicted demand by 2050.

Against this backdrop, insects can be seen as an alternative, [sustainable protein source](#), high in good-quality protein, fatty acids and micronutrients such as iron, magnesium and selenium. They produce less greenhouse gases and ammonia than conventional livestock, and use significantly less water. They have high feed conversion efficiency: on average, insects can convert 2 kg of feed into 1 kg of insect mass (whereas cattle require 8 kg of feed to produce 1 kg of body weight gain).

Insects have traditionally been consumed as human food in many parts of the world, predominantly in Asia, Africa and Latin America. According to a 2013 FAO [report](#), insects form part of the diet of at least 2 billion people and more than 1 900 species are used as food. Contrary to common misconception, the FAO notes that insects are not only used because there are no other food sources available, but because of their taste. The most commonly consumed insects are beetles, caterpillars, bees, wasps and ants, followed by grasshoppers, locusts and crickets. They can be eaten whole or ground into a powder or paste. Insect farming for human consumption has traditions in Thailand and Vietnam, where crickets are reared in sheds in backyards.

### Regulating insect food

The use of insects as food falls under [Regulation \(EC\) No 259/97](#) on Novel Foods. According to the regulation, food ingredients (for instance, protein isolates) extracted or isolated from insects fall within the definition of novel food as 'food ingredients isolated from animals'. Insects, parts of which have been removed (such as legs, wings, head, intestines, and so forth) also fall within this definition. However, there has been uncertainty amongst the Member States on whether the regulation also covers whole insects or preparations made thereof (for instance, worm paste). Most Member States are not allowing any foods from insects on their market as none have been authorised as novel food, but a few Member States tolerate whole insect-based foods and products on their market.

For example, cubes of ground-up insects and bags of whole mealworms, crickets and grasshoppers are on sale in the [United Kingdom](#); in the Netherlands and [Belgium](#), insect burgers and nuggets as well as vegetable spreads made with mealworms are available in some supermarkets. Some restaurants serve insect food, and tastings are offered during different events, including one in the [European Parliament](#).

The European Parliament and Council agreed on a new regulation on novel foods in November 2015 ([Regulation EU 2015/2283](#)). Applicable from 1 January 2018, the regulation brings whole insects, as well as their parts, explicitly under its scope (recital 8 of the regulation). Since insects were not widely consumed in the EU before May 1997 (the date of entry into force of the current regulation, to be repealed by the new one), insect-based foods are considered to be '[novel foods](#)', requiring a pre-market authorisation.



Transitional measures are in place for food which did not fall within the scope of the 'old' regulation and was lawfully placed on the market before the date the new regulation starts applying (Article 35 of the new regulation). This is the case for insect-based food that had been marketed in some Member States until now. These foods may continue to be placed on the market until they undergo a risk assessment and authorisation procedure defined in the new regulation. Producers are obliged to submit an application for authorisation to the European Commission by 2 January 2020. The implementing acts laying down the administrative and scientific requirements for applicants are being drafted and should be adopted by 1 January 2018, leaving companies currently offering insect products a two-year period to apply for authorisation.

Authorisations will be generic, meaning that individual companies will not need to submit applications for the same product (which had been the case under the 'old' applicant-based system). The Commission will have one month to consider whether it wants to refer the case to the European Food Safety Authority (EFSA) for further safety assessment.

To facilitate the entry into the EU market of traditional foods from third countries, the new regulation provides for a simplified notification procedure for food 'with a history of safe use over at least 25 years in the customary diet of a significant number of people in at least one third country'. An applicant from a third country where insects have traditionally been consumed, could thus submit a notification to the Commission informing it of its intention to bring such products into the EU market. Any Member State or EFSA may submit 'reasoned safety objections' to the Commission, if any of them has concerns over the safety of the new product. In this case the product then has to undergo a full safety assessment by EFSA.

The Commission requested EFSA to update and develop scientific and technical guidance for the preparation of applications and for notifications for traditional foods from third countries. The EFSA guidance was [presented](#) to stakeholders in April 2016 and, subject to public consultation, may be adopted by September 2016.

### Food safety aspects

Even though the existing Novel Foods Regulation requires an authorisation for introducing novel foods on the market, no applications have been submitted for insects as novel food. [Belgium](#), [France](#) and [the Netherlands](#) have performed risk assessments related to insects as food or feed. EFSA published a '[Risk profile related to production and consumption of insects as food and feed](#)' in October 2015. It concluded that when currently permissible feed materials are used to feed insects, the occurrence of microbiological hazards is expected to be comparable to other sources of animal protein. Further research is needed to assess risks when using [substrates](#) like food waste or manure.

According to EFSA, pathogenic bacteria, such as *Salmonella*, *Campylobacter* and *E. coli*, may be present in non-processed insects, depending on the substrate used and the rearing conditions. Proper management before consumption, like freezing and cooking, can eliminate risks. Production methods, substrate, stage of harvest and insect species will all have an impact on the presence of chemical contaminants. EFSA suggests that the label should include a warning for a possible [allergic reaction](#) for persons allergic to seafood or dust mites. The Agency noted that there is a lack of systematic data on animal and human consumption of insects, and recommended further research.

### Consumer attitudes

A big challenge in introducing insect protein into the human food chain seems to be the '[yuck-factor](#)', or public acceptance of insect food. But dietary habits can change quickly, examples being the consumption of raw fish in Western societies in the form of sushi and of the novel fungal protein product Quorn. According to a recent [study](#), the most likely early adopters of insects as a novel protein source are younger males interested in the environmental impact of their food choices. Another possible first audience are '[foodies](#)', people enthusiastic about food seeking new culinary experiences and often choosing to consume ethical, ethnic, local and/or organic food.

The [International Platform of Insects for Food and Feed](#) (IPIFF), representing the interests of the insect sector was established in April 2015. A [scientific symposium](#) was organised by the German Federal Institute for Risk Assessment in May 2016, and an International Symposium '[Insecta 2016](#)' will take place in September 2016.