

Edible insects on the European market



01 | Insect farming is a growing industry in Europe

According to the FAO, insects are part of the diet of more than two billion people around the world. Currently, edible insects represent a niche market in western societies. However, **insect farming is a growing industry in Europe** as our dietary habits are rapidly changing and the willingness of consumers to try insect-based food is increasing. This trend is supported by positive media coverage and greater availability of insect products. Their **nutritional benefits** and **lower environmental footprint** further boost the trend (e.g. flexitarians, organic food consumers or those following a paleo diet are generally paying more attention to sustainable food sourcing and/or to the health effects of what they eat). This change in attitudes around food creates new opportunities for the edible insect sector.

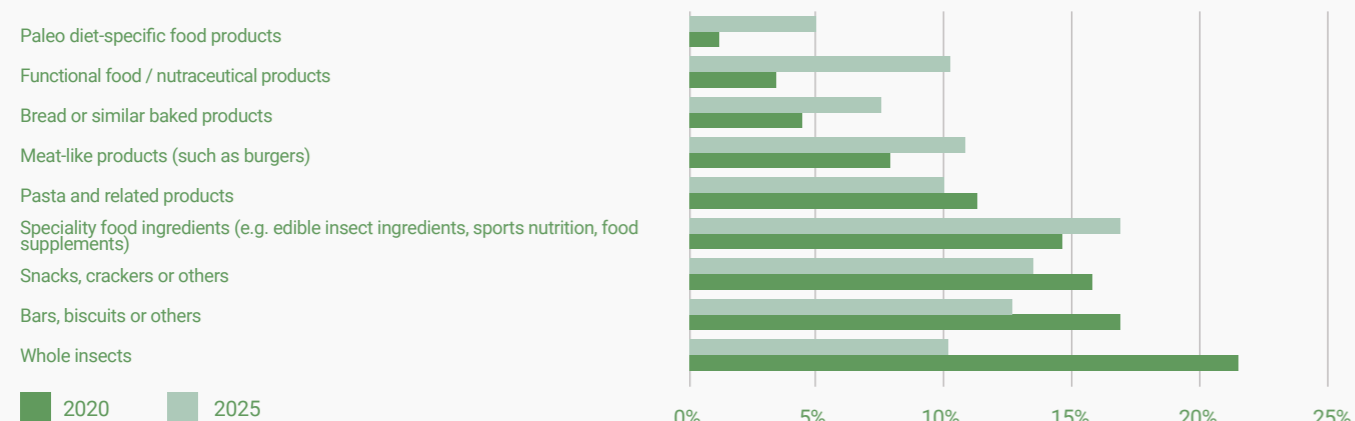
The **growing demand for high protein food** for sports nutrition, dietetic food or food supplements creates further opportunities. Currently, the use of insect-derived ingredients in such specialised products is a niche, but it is forecasted to develop rapidly in the next few years. Furthermore, the development of the insects as food market in Europe would be driven by accessibility, consumer acceptance and sociocultural evolution ([Source IPIFF vision paper](#)).

A regulated market for insects as food

In the context of the growing interest for edible insects on the European market, certain national policy attention and prompt regulatory response was generated. In the European Union (EU) whole insects and their ingredients are included under the Regulation (EU) No 2015/2283 on novel foods (or the 'new' novel food regulation). The Regulation came into force on 1st January 2018 and requires **pre-market authorisations** before commercialising these products across the EU market. Assessment of novel food applications is currently underway (European Commission and European Food Safety Authority – EFSA) and the first **authorisations on the EU market are expected by the end of 2020 or early 2021**. However, with products already on the market in several EU Member States, the transitional measure provided under this regulation grants an extension for the placing on the market of edible insects and their preparations in the countries where such products were legally commercialised on a 'national market' before 1st January 2018¹.

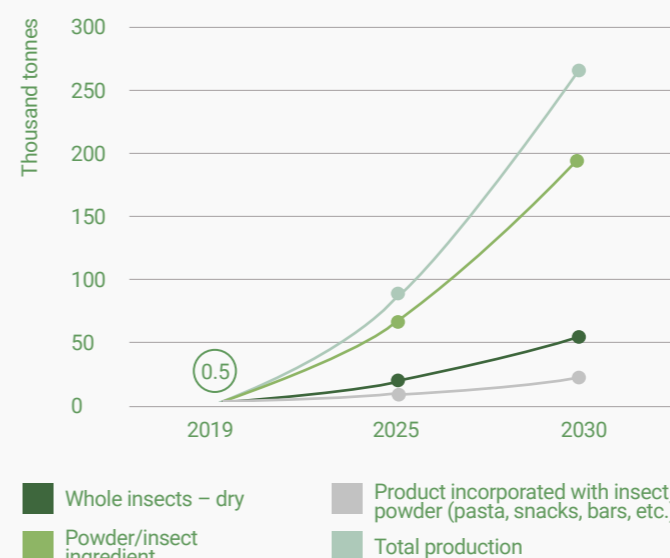
02 | Key economic figures

Market share - insect Food Business Operators' (iFBOs) product types



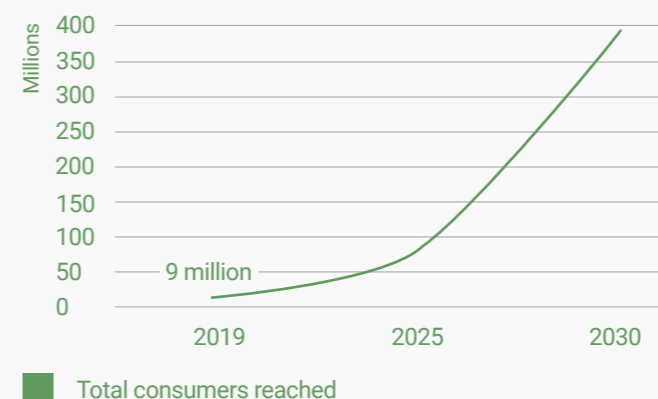
The growing demand for high protein food for **sports nutrition, dietetic food or food supplements** creates further opportunities for the insect sector. **Insects are highly versatile** and can be incorporated in foods directly as whole insects boiled, fried or in dried form, whole insects processed into a granular powder or paste to increase nutritional value or functionality. To this end, insect-derived ingredients, such as protein powder and extracts could be added to foodstuff. Presently, the **highest market share is represented by whole insects** (close to a 1/4th of the products on the market), **followed by bars, snacks, speciality food ingredients and pasta** (see the categories above). By 2025, **speciality food ingredients will cover close to a 1/5th of the market**, with snacks and bars remaining on the 2nd and 3rd place in terms of market share. Thanks to a high growth rate (2020 vs 2025), meat-like products and functional food will rank 4th and 5th in terms of market share in 2025. Despite representing a small share of the present market, it is anticipated that **paleo** (83%), **functional food** (75%), **baked products** (55%) and **meat-like products** (46%) will have the **highest growth rate**. This rapid growth will also increase the market share of these four categories combined – reaching more than a third by 2025 (from circa 17% in 2020). The forecast of a potential shift in product representation by 2025 is driven by **consumer acceptance, change in sociocultural aspects (i.e. increasing demand for meat analogues) and product demand**. The novel food authorisations should also play a constructive role in shaping the market, facilitating access to insect-based products in countries where the demand for functional food, pasta or meat analogues is generally high.

iFBOs production and forecasts



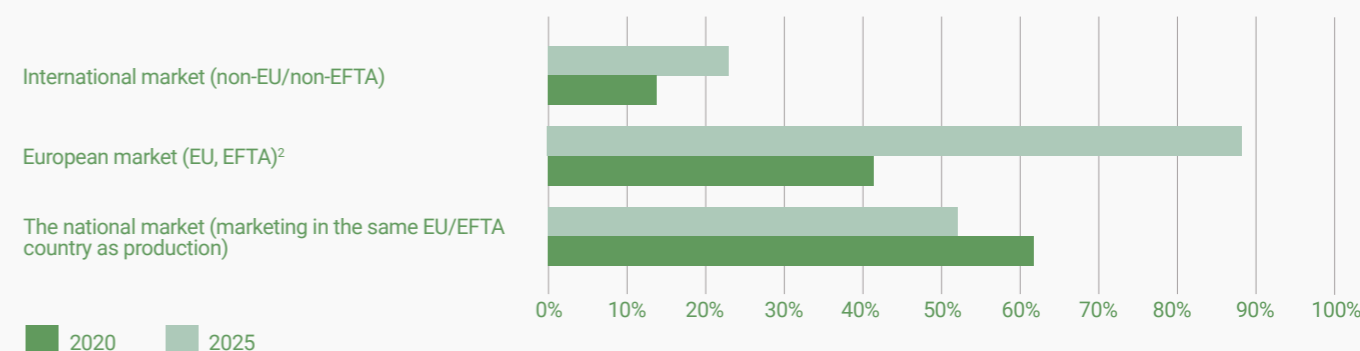
In 2019, the European iFBOs accounted for about 500 tonnes of insect-based products (whole insects, insect ingredients and products incorporated with edible insects) placed on the European market. The market for edible insect-based food products is projected to grow rapidly in the next few years and forecasted to produce about **260,000 tonnes by 2030**. Although a significant rise is foreseen in production values by 2025, it is important to note that in 2019, the market was represented by quite a limited number of actors, notably due to the current regulatory uncertainties or 'restrictive' approaches taken by several Member States authorities (i.e. non-use of the novel food transitional period), which explains why the provided figures (in terms of volumes) could be perceived as low. Furthermore, during this period, several companies have kept their activity on hold, awaiting the first EU novel food authorisations. The production forecasts mirror a much more 'dynamic' market structure than today, thanks to a return to the market of previously established companies, expected emergence of new actors, expanded consumer outreach and the market not being limited to niche/specialised outlets (as it is currently the case).

iFBOs consumers reached in Europe and forecasts



Insects are known to be a sustainable and nutritious integration into diets. Furthermore, current consumption trends and change in attitudes around food are increasing the number of consumers willing to eat insects in the EU. In 2019, about **9 million Europeans consumed insects and their derived products**. They were primarily reached through marketing channels presently used by iFBOs (mostly company's website or fairs/events conferences – see section on marketing channels). **By 2030, this figure is forecasted to reach a total of 390 million consumers**. The increase in consumption is driven by several factors, notably the expected authorisation of insects as a novel food, the diversity in products on the market, availability of the product (e.g. availability in retail outlets) and the consumers' acceptance.

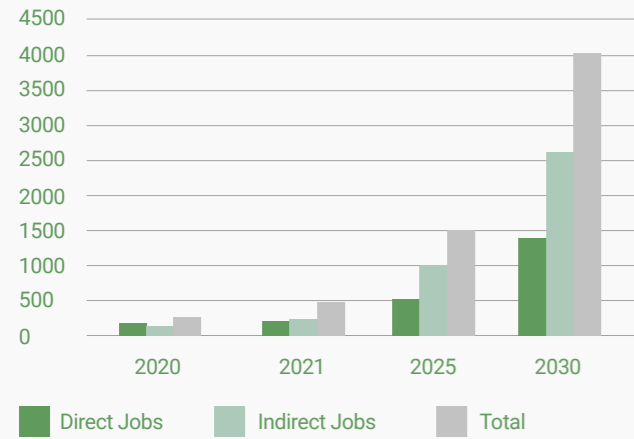
Geographic segmentation: markets targeted by European iFBOs



Currently, the majority of the European iFBOs (2/3 of the respondents) primarily focus their activity (sale of products) on their respective national market. The European market (EU 28 - represented by Member States applying the transitional measure - and EFTA countries) remains an important target. This market remains yet insufficiently explored by iFBOs, possibly a consequence of an 'unlevel playing field' triggered by the non-harmonised application of the 'transitional measure' among the EU Member States (MS). As of 2020, operators also target the international markets (non-EU/non-EFTA). However, by 2025 iFBOs intend to concentrate most of their activity on the EU market (88% of the respondents). This is potentially due to the long-awaited authorisations of insects as food. Operators further indicate their intention to continue to focus their activity at both national and international level.

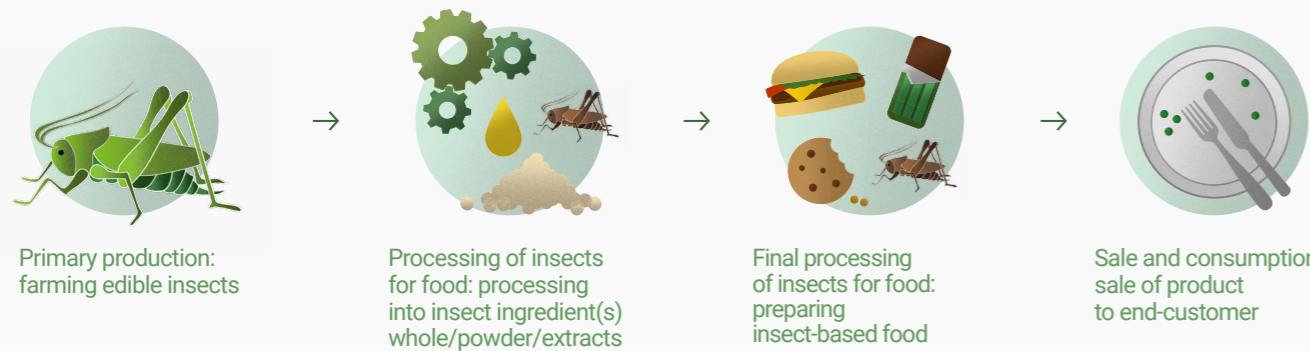
¹ For further details please refer to: [IPIFF Briefing paper on the provisions relevant to the commercialization of insect-based products intended for human consumption in the EU](#); FAQs Insects as novel foods in the European Union.
² The 'EFTA category' includes operators from the European Free Trade Association countries.

Number of jobs created by iFBOs



With the growth of the insect sector and growing investment, more jobs will be created. An increase in both direct jobs, that involve primary production or processing activities of edible insects, as well as indirect jobs, such as in specialised retail, logistics, administration or research is foreseen. The forecasts reflect a **significant rise in jobs by 2025**, potentially indicating the positive impact of the expected novel food authorisations of insects as food in the EU. The **increase in indirect jobs** could indicate the expansion of consumers to be reached by European iFBOs considering its targeted market shift to the EU market by 2025.

Steps involved in the production of edible insect products



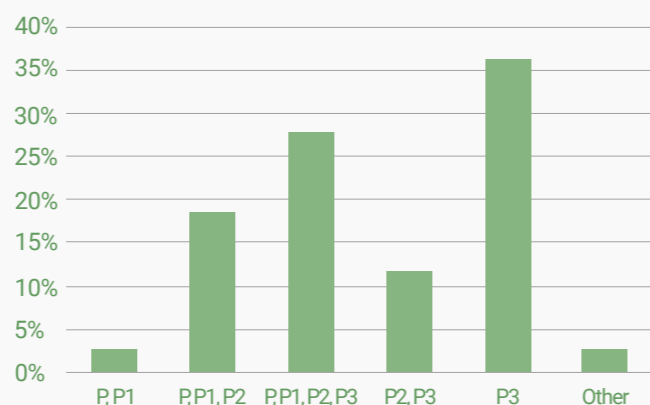
The profile of iFBOs

There are numerous entrepreneurs and companies active in the production of insects as food across the EU. iFBOs broadly encompass activities from 'Farm to Fork', which include farming of insects intended as food, processing them into ingredients (whole/insect ingredients), and incorporating them into food products. Furthermore, certain operators are involved only in selling various edible insect products through their respective channels (e.g. online platforms). The iFBOs are largely comprised of **'micro' companies (81%)**, followed by small (16%) and medium (3%) size companies³. The total investment⁴ in the majority of companies is below 500,000 euros, followed by 19% and 13% of companies having up to 1 and 5 million euros respectively. Companies receiving investments of up to 10 and above 25 million represented a total of 6% of the operators.

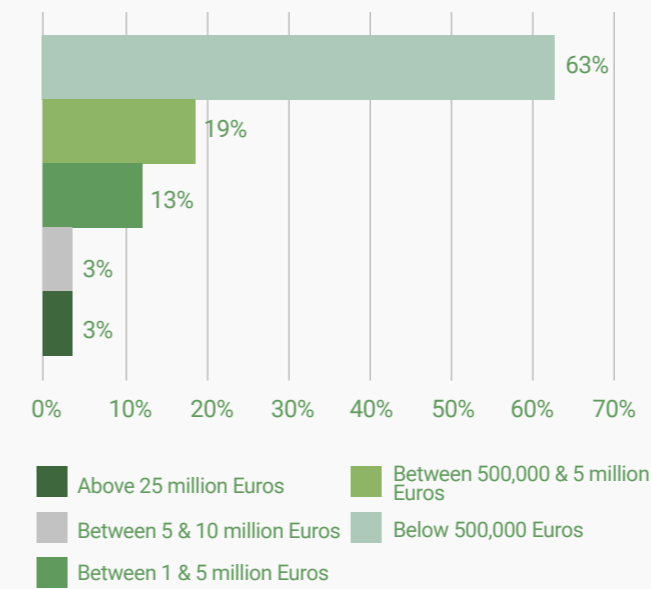
The majority of iFBOs in Europe (circa 36%) are only involved in the final processing of insects for food (incorporation of whole insects/insect ingredient(s) in end product/preparations) and producing an end-consumer oriented product. **They are followed by 28% of iFBOs involved in all the stages of production**, that include farming of insects, processing them for derived ingredients, producing a final end-consumer oriented product and the sale to an end-consumer. The products of these operators can be oriented toward both other businesses (such as supplying ingredients to final processors food products) and end-consumers (insect-based foods such as burgers, snacks, bars, biscuits, etc). These operators, in turn, could have a broader range of customers (Business to Business-B2B, Business to Consumer - B2C) and commercial activity. 19% of the operators were involved in farming and processing insects into ingredients. These products would be intended for other iFBOs involved in producing end final consumer-based products. Furthermore, 12% of iFBOs activity are involved only in producing insect-based ingredients and end-consumer products. However, 3% of the iFBOs are involved only in farming activities (including killing step) of insects intended as food. These operators would have an intended product (whole insects) for iFBOs involved in further processing activities (operation profile P2, P3 – see figure iFBOs operation profile). Furthermore, 3% of operators were not involved in production or processing activities, rather in sales of various edible insect products to end-consumers through their respective channels (e.g. online platforms).

iFBOs operation profile

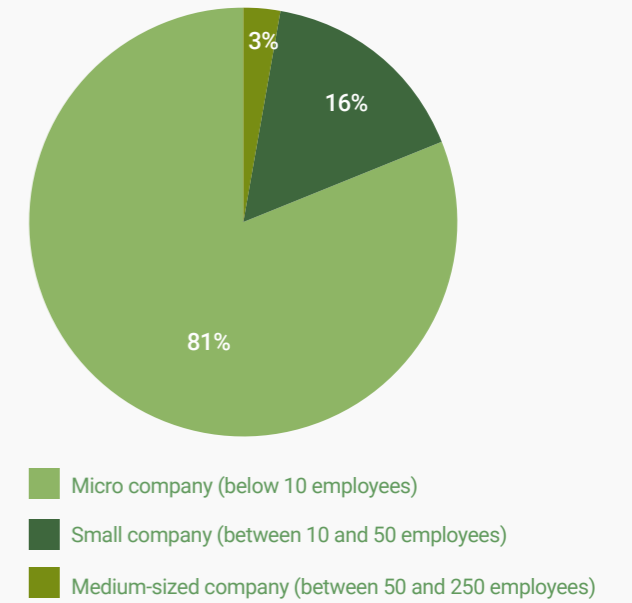
- P - Primary production of insects for food (insect breeding activities)
- P1 - Killing step
- P2 - Processing of insects for food (processing into insect ingredients)
- P3 - Final processing of insects for food (incorporation of insect ingredient(s) in preparations)
- Other - Only sale of edible insect products (e.g. online platforms)



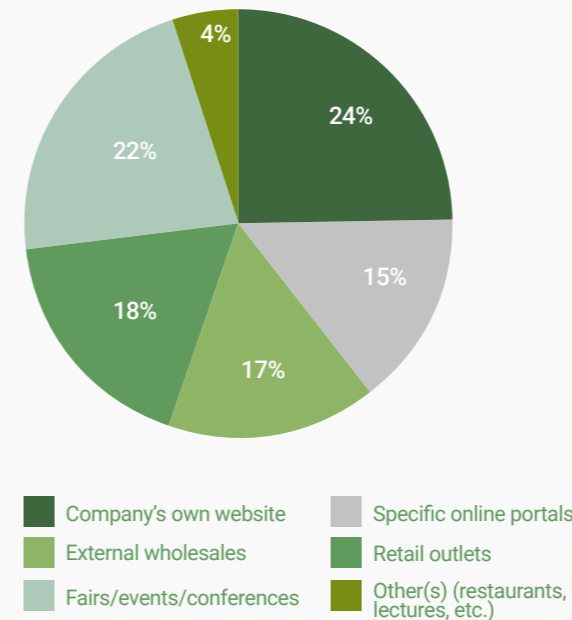
Investment in companies



iFBOs company size³



Marketing channels used by iFBOs



Currently, the most used **channels for marketing** of edible insect products are through **companies' own websites (24%), followed by in fairs/events/conferences (22%)**. The functioning of these marketing channels is undertaken by the iFBOs and its effectivity is respective to each company's capacity. In terms of marketing channels used by iFBOs, retail outlets, external wholesalers and specific online portals represent a similar share. The marketing support through these channels assist in further enhancing the communication and outreach of the product to consumers. However, these channels cannot be fully utilised, as operations are restrictive to regional markets (application of the transitional measures in the MS). The least represented are channels such as restaurants promoting insect-based meals, or public lectures. The niche, region-specific market and outreach of the insects as food sector reflect on the channels currently used by iFBOs.

Data source: IPIFF Questionnaire on the EU market - March 2020

IPIFF launched a survey in March 2020 to map the current and forecasted EU market of edible insects. The respondents (33) to the survey are iFBOs active on the European market (including EFTA countries). In addition to the IPIFF members, the targeted respondents (not affiliated to IPIFF) were mapped online or through IPIFF internal channels (members, contacts). The companies identified (71) are involved in the production and/or marketing of edible insects in Europe. All respondents of our study participated voluntarily. The companies represent the forerunners, whose products cover a vast majority of the European market for insects as food. The output of this consultation assists in portraying a more representative picture of the activities across the EU market for edible insects. According to the respondents' inputs, the species of insects covered were black soldier fly (*Hermetia illucens*); yellow mealworm (*Tenebrio molitor*); lesser mealworm (*Alphitobius diaperinus*); house cricket (*Acheta domesticus*); banded cricket (*Grylodes sigillatus*); migratory locust (*Locusta migratoria*).

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³ According to the Eurostat definition.

⁴ The total amount of external financial support (capital, investment, debt, subsidies...) received by the company since its inception.