

Insects Innovation in Gastronomy

COURSE SUPPORT



Module 1 Unit 2:

What Are Edible Insects?

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Module 1: Introduction to Edible Insects in Gastronomy

Unit 2: What Are Edible Insects?

Edible Insects and Their Approval in the European Union: Understanding Novel Foods, Approved Species as Edible Insects and Available Final Marketed Options.

In this unit, we will explore what is considered a *novel food*, the concept of edible insects, and which species have been approved by the European Union. We will also look at some examples of how these insects are already being marketed.

Since 2015, European legislation has classified insects as *novel foods*. This term refers to any animal-based food or its components that were not significantly consumed before May 1997. Before a novel food is authorized, the **European Food Safety Authority (EFSA)** ([EFSA Website](#)) conducts extensive analyses and safety assessments to ensure that its consumption poses no risk to consumers.

Globally, around **1,900 insect species** are consumed as food, including grasshoppers, scorpions, ants, and termites. However, under **EU Regulation (EU) 2015/2283**, only four insect species have been officially approved for human consumption:

1. **Mealworm larvae (*Tenebrio molitor*)**
2. **Migratory locust (*Locusta migratoria*)**
3. **House cricket (*Acheta domesticus*)**
4. **Lesser mealworm larvae (*Alphitobius diaperinus*)**

Detailed Overview of Approved Edible Insects

1. Mealworm Larvae (*Tenebrio molitor*)

- These are the juvenile stage of the *Tenebrio molitor* beetle, commonly farmed in controlled environments, particularly in the animal feed industry.
- The larvae are **rich in protein (40-50% dry weight), healthy fats, fiber, and minerals**.
- They are available **dried or powdered** and used in products such as flour, snacks, cookies, pasta, and energy bars. Additionally, they are processed into **oils high in essential fatty acids**.
- Their mild, nutty flavor (resembling walnuts and almonds) makes them suitable for both sweet and savory dishes.

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2. Migratory Locust (*Locusta migratoria*)

- A **large insect (6-8 cm long)** from the *Acrididae* family, known for forming massive migratory swarms.
- Found across Africa, Asia, and parts of Europe.
- A **high source of macronutrients**, including proteins, healthy fats, fiber, vitamins, and minerals like magnesium, calcium, and zinc.
- Available **frozen, dried, or in powder form**. In dried or powdered form, their **protein content increases from 43% to 60%, and fat content from 31% to 41%**.
- Their **savory, shrimp-like flavor** makes them ideal for frying, where they take on a texture similar to potato chips.

3. House Cricket (*Acheta domesticus*)

- A **small insect (2-3 cm long)**, well known for its characteristic chirping sound.
- Originally from Asia but now widely farmed globally due to its ease of cultivation.
- Extremely **nutritious, containing 60-70% protein (dry weight) and essential fatty acids**.
- Sold **frozen, dried as a snack, or in powdered form** for use in protein products, cookies, and pasta-based foods.
- Its **mild, nutty flavor**, similar to mealworms, makes it versatile in both sweet and savory recipes.

4. Lesser Mealworm Larvae (*Alphitobius diaperinus*)

- A beetle species **native to Africa**, but also found in the Middle East, Asia, and Europe.
- The **edible larvae are small, white, or yellowish** and are farmed under controlled conditions to ensure safety.
- In 2022, **EFSA approved frozen and freeze-dried preparations** of these larvae for use in various foods such as **cereal bars, pasta, meat substitutes, and baked goods** ([EFSA Journal - 2022](#)).
- They are **high in protein, healthy fats, and fiber**, along with essential minerals such as copper, magnesium, phosphorus, selenium, iron, and zinc.
- Their **nutty taste** makes them a good ingredient for different culinary applications.
- In **January 2023, the EU authorized these larvae** in multiple forms, including **frozen, paste, dried, and powdered** ([EU Official Document](#)).

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Safety and Commercial Availability

It is important to highlight that all **EU-approved edible insects are farmed under strictly controlled conditions**, ensuring **safety and quality** for human consumption.

These insects can be found in various **forms**:

- **Whole dried**
- **Powdered**
- **As an ingredient in processed foods**

Many **European companies** are already selling insect-based food products. Below are some **examples of brands and their offerings**:

1. Jimini's ([Website](#)) (France)

- Seasoned **crickets**
- Seasoned **mealworms**
- Seasoned **grasshoppers**
- **Granola**
- **Crackers** in various flavors
- **Protein bars and pasta**

2. Beetles Beer ([Website](#)) (Belgium)

- A **Belgian brewery** specializing in insect-based beers, using different insect species depending on the type of beer.

3. Entomos ([Website](#)) (Switzerland)

- A **Swiss company** specializing in insect farming.
- Works with chefs to create **insect-based flour, pasta, chips, and snacks**.

4. Europe Entomophagie ([Website](#)) (France)

- A **distributor of various edible insects**, offering **bulk sales** of single or mixed species.
- Includes **sweet insect-based treats**, such as **chocolate-covered insects and lollipops**.

5. Nimavert ([Website](#)) (Belgium)

- Offers a **wide range of products**, from **flavored insects to pâté, gin, chips, and more**.
- Has a presence in **multiple European countries**.

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6. Essento ([Website](#)) (Switzerland)

- Specializes in **processed insect-based foods**, including **burgers and meatballs**.
- Due to high demand, they expanded their range to include **ready-to-eat snacks and protein bars**.

Conclusion

With these examples, we hope to have provided a better understanding of **the diversity of insect-based food products available in the European market**. As regulations evolve and consumer interest grows, edible insects are expected to play an increasing role in **sustainable gastronomy and nutrition**.