

THE INTERNATIONAL PLATFORM OF INSECTS FOR FOOD AND FEED

Regulatory update and future perspectives of the
insect rearing industry sector

Mr Christophe Derrien– IPIFF Secretary General
Conference ‘New Stakes and Challenges of the Insect Rearing Industry’

26 April 2022

TABLE OF CONTENTS

1. Introduction: IPIFF and the European insect sector
2. EU regulatory landscape and latest milestones
3. Contributing to the F2F objectives – what's coming next

I. Introduction: why insects?

- Inspired from processes occurring in nature, insect farming provides **solutions** to key European and global challenges, such as:



A. food waste

'...about 20% of the food produced is wasted...'



B. reliance on food imports

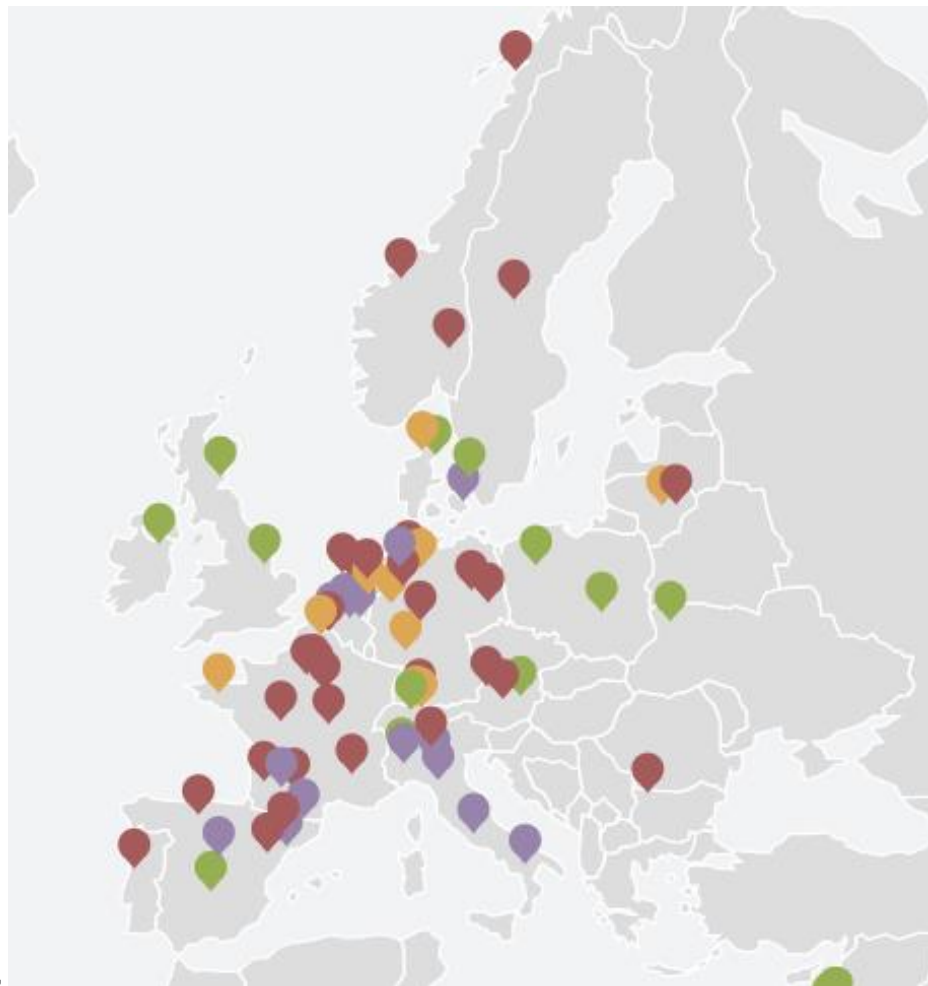
'The EU is the biggest importer [...] of agri-food products...'



C. feeding a growing population – while limiting the expansion of agricultural land

'...68% of the total agricultural land is used for animal production.'

I. Introduction: IPIFF and the European insect sector



I. IPIFF missions and activities

80 Members

voice of insect producers

Consolidating dialogue

with EU public authorities

Advocating

for appropriate legislative frameworks

Support

in the effective implementation of legislation

Promotion and development

of shared standards and best practices

Collaborative actions

with other umbrella associations



The European insect production sector today

- Predominantly composed of **SMEs**, serving both the **food and feed** markets (start-ups and ‘older’ businesses, previously active in other segments e.g. in biocontrol, pet food);
- EU production represents today few **thousand tonnes**, whereas investments account for more than **1 billion EUR** – this figure is expected to **exceed 3 billion EUR** by 2025
(source: *IPIFF internal questionnaire 2020*);
- **More than a thousand direct jobs today** – likely to exceed thirty thousand by 2030
(source: *IPIFF internal questionnaire 2020*).



II. EU regulatory landscape and latest milestones



The EU regulatory status of insect farming

- Farmed insects are considered ‘**farmed animals**’:
‘...insects farmed in the EU for the production of food, feed or other purposes are ‘farmed animals’ (Regulation (EC) No 1069/2009 on Animal by-Products);
- Insect farming **is** an **agricultural activity**, as insects are included in Annex I of the TFEU;
- Thus, insect farming activities **do** fall under the scope of ‘**EU Agricultural rules**’ (e.g. EU organic legislation, Rural development programs under the Common Agricultural Policy).



Requirements on substrates of animal origin as feed for insect

- Regulation (EC) No 767/2009: animals in the EU may only be fed with safe feed - **prohibition feeding faeces** and separated digestive tract content;
- Regulation (EC) No 999/2001 prohibits to feed insects with **any PAPs**, except fishmeal;
- Regulation (EU) No 142/2011 (annex X, section 10) **excludes former foodstuffs containing meat and fish**;
- EU residue limits for **contaminants** (Directive 2002/32/EC) apply to feed for insects and insects as feed materials.

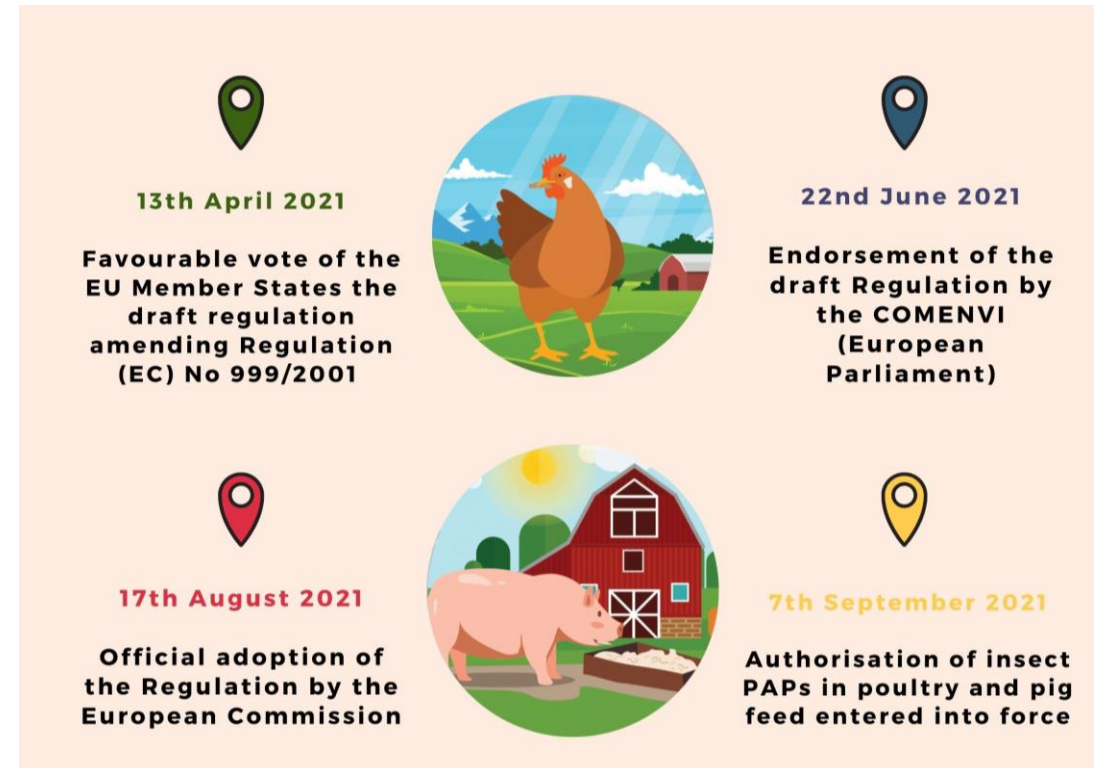


Substrates for insects intended for all applications (food, feed, technical uses) – Farmed insects qualify as 'farmed animals' - Article (3)(6) of Regulation (EC) 1069/2009	
Authorised	Prohibited
Feed materials of vegetal origin	'Feed Marketing' Regulation - Regulation (EC) No 767/2009 Annex III: - Faeces and separated digestive tract content - hide treated with tanning substances - seeds and other plant-propagating materials (treated with plant protection products) - wood and their derived products - waste derived from urban, domestic and industrial waste treatment - packaging from agri-food products and parts thereof - protein products obtained from yeasts of the Candida variety cultivated on n-alkanes.
Feed materials of animal origin ABP health rules - Regulation (EU) No 142/2011; Annex X, Chapter 2, Section 10 and TSE Regulation (EU) No 999/2001, Article 7 and Annex IV, Chapter 1 and 2: - Hydrolysed proteins, fishmeal, collagen and gelatine or blood products derived from non-ruminants (or parts of non-ruminants) - Hydrolysed proteins from ruminant, hide and skins as well as for di and tricalcium phosphate (including compound feed containing such products)	EU Animal By-Products (ABP) Regulation (EC) No 1069/2009: - catering waste (Art. 11 (1) (b)) - insect PAPs derived from animals of the same species (Art. 11 (1) (a)) E.g. feeding of black soldier flies with PAPs derived from that same species.
Former Foodstuffs TSE legislation - Regulation (EC) No 999/2001 Annex IV, Chapter II: - Without meat and/or fish - only products containing the following ingredients of animal origin: eggs and egg products; milk, milk based-products and milk-derived products; honey; rendered fat; collagen; gelatine <i>*these ingredients must have been previously processed (either prior their intended use as food product or after being requalified as animal-by-product).</i>	TSE legislation - Regulation (EC) No 999/2001: - Processed Animal Proteins (PAPs), blood products - Collagen - Gelatine - hydrolysed proteins of animal origin and derived from ruminants (annex IV, Chapter 1 and 2).
Residue limits for contaminants and requirements applying to feed additives	The 'Feed Marketing' Regulation (i.e. Regulation (EC) No 767/2009) provides that animals (including therefore insects) bred in the EU may be only be fed with safe feed . Regulation (EC) No 396/2005 - maximum residue levels of pesticides in feed Undesirable Substances Directive (i.e. Directive 2002/32/EC)
Feed additives	Only the feed additives which are authorised for all animal species may be used as feed ingredient for insects. - Regulation (EC) No 1831/2003 . No specific additives for insects have been defined.

Source: *IPIFF Guide on Good Hygiene Practices – update March 2022*

Authorisation for using insect proteins in poultry and swine feed







- The 2017 authorisation of processed animal proteins derived from insects (**insect PAPs**) for use in **aquafeed** has paved the way to new feed markets for insect producers (until then, authorised feed markets were limited to pet food, fur animals and other 'niche' markets) ;
- Commission **Regulation (EU) 2021/1372** authorises the use of insect PAPs in **pig** and **poultry** feed. This authorisation became effective **on 7 September 2021**.



EU rules applicable today: insect substrates and the use of insects in animal feed

Feed stocks

- ✓ Vegetal substrates
- ✓ Former foodstuff: vegetal, dairy and eggs

							
Insects as feed - Regulation (EU) No 68/2013 on the Catalogue of feed materials	Ruminant animals	Aquaculture	Poultry	Pigs	Pets	Fur and other animals (e.g. zoo)	Technical uses (e.g. cosmetic industry, bio-based fuels, production of other bio-based materials such as bioplastics)
Insect proteins (under entry 9.4.1. 'Processed animal protein')	✗	✓ **	✓ **	✓ **	✓	✓	✓
Insect fats (under entry 9.2.1 'animal fat')	✓	✓	✓	✓	✓	✓	✓
Whole insects (untreated) (under entry 9.16.2. 'terrestrial invertebrates, dead')	✗	✗	✗	✗	✗	✓ *	✓
Whole insects (treated- e.g. Freeze drying) (under entry 9.16.2. 'terrestrial invertebrates, dead')	✗	✗	✗	✗	✓ *	✓ *	✓
Live insects (under entry 9.16.1 'terrestrial invertebrates, live')	✗	✓ *	✓ *	✓ *	✓ *	✓ *	✓
Hydrolysed insect proteins (under entry 9.6.1. 'Hydrolysed animal proteins')	✓	✓	✓	✓	✓	✓	✓

*If authorised by the national competent authority of the country where the product is being commercialised.
 ** Limited to Black Soldier Fly (*Hermetia illucens*), Common Housefly (*Musca domestica*), Yellow Mealworm (*Tenebrio molitor*), Lesser Mealworm (*Alphitobius diaperinus*), House cricket (*Acheta domestica*), Banded cricket (*Gryllodes sigillatus*), Field Cricket (*Gryllus assimilis*) and Silkworm (*Bombyx mori*).

Restriction to insect species (insect PAPs for aqua feed) - Regulation (EU) No 142/2011, Annex X Chapter 2 Section 1, A.(2).
 - Insect PAPs must be produced in **processing plants approved** in accordance with Article 24(1)(a) of Regulation (EC) No 1831/2003 and **dedicated exclusively** to the production of products derived from farmed insects. **Regulation (EC) No 999/2001, annex IV, Chapter III, Section F, 1 (a)**
 - Insect PAPs must be produced according to **processing methods 1 to 5** or **processing method 7** (Regulation (EU) No 142/2011, Annex X, Chapter II, Section 1, B (2)).

No restriction as to the insect species (provided that these are not pathogenic to humans and animals)

Legend: Overview of EU regulatory possibilities for feeding whole insect larvae to farmed and non-farmed animals.
[*IPIFF Guide on Good Hygiene Practices*](#)
 (updated version March 2022) (p 25)

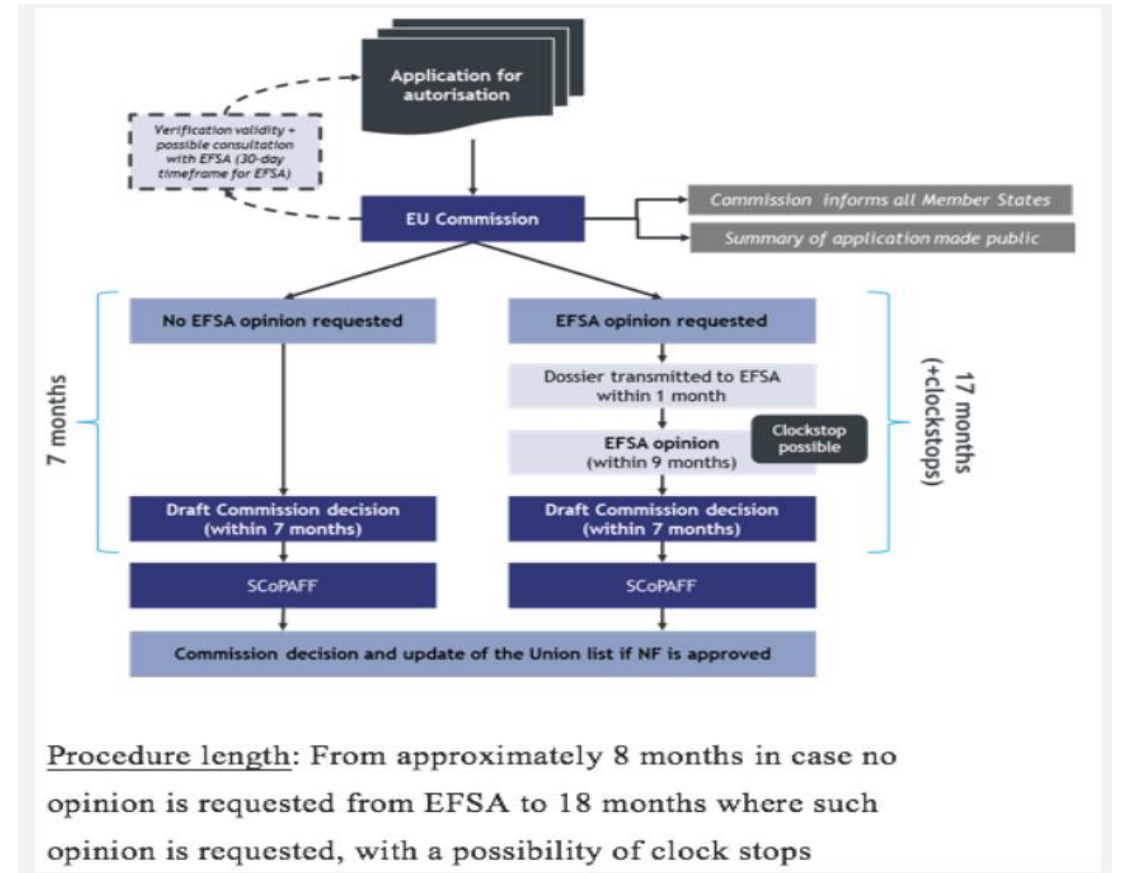


Insects as food: EU novel food procedures

Can edible insects be lawfully placed on the European Union (EU) market today?

Yes, whole edible insects and their derived ingredients can be lawfully placed on the EU market - but require pre-market authorisations. The market authorisation is granted following the submission of an application to the European Commission (EC), the safety evaluation of the novel food by the European Food Safety Authority (EFSA) and a favourable vote given by the EU Member States (MS). Edible insects are regulated under the 'new' EU novel foods legislation – Regulation (EU) 2015/2283 which applies from 1 January 2018.

Standard authorisation procedure



Procedure length: From approximately 8 months in case no opinion is requested from EFSA to 18 months where such opinion is requested, with a possibility of clock stops

Source: *Novel food briefing paper – IPIFF (May 2018 – updated in 2021)*

Insects as Novel Foods in the European Union

Frequently Asked Questions

- Can edible insects be lawfully placed on the European Union (EU) market today?**

Yes, whole edible insects and their derived ingredients can be lawfully placed on the EU market, but require pre-market authorisation. The market authorisation is granted following the submission of an application to the European Commission (EC), the safety evaluation of the novel food by the European Food Safety Authority (EFSA) and a favourable vote given by the EU Member States (MS). Edible insects are regulated under the 'new' EU novel foods legislation – Regulation (EU) 2015/2283 which applies from 1 January 2018.
- Which insects are authorised for human consumption in the EU?**

So far, only dried yellow mealworms (larvae) and crickets have been authorised for human consumption in the EU. On 1 June 2021, the Commission published the first list of authorised novel foods. This list includes: dried yellow mealworms (larvae) and crickets (whole insects) for use as a source of protein. The Commission also authorised the use of dried yellow mealworms (larvae) and crickets (whole insects) as ingredients in food products. The Commission also authorised the use of dried yellow mealworms (larvae) and crickets (whole insects) as ingredients in food products. The Commission also authorised the use of dried yellow mealworms (larvae) and crickets (whole insects) as ingredients in food products.
- Why does the Implementing Regulation on 'dried yellow mealworms' cover this insect food product only? Are there other applications for insects as novel food which have been submitted to the European Commission since the new novel food legislation entered into force?**

Since food products are evaluated and then, consistently, authorised based on individual applications submitted by manufacturers (e.g. in the above mentioned case, the apply apply to the implementing Regulation submitted by the company SAJ, EAF Group, Germany) and not to the Commission as a whole, there are currently no other applications for insects as novel food products submitted to the Commission. However, there are currently no other applications for insects as novel food products submitted to the Commission.
- Who are the actors that have submitted such applications? Has IPIFF submitted an application?**

The actors who have submitted these applications are mainly insect protein manufacturers (locally, regionally, nationally or internationally) and insect protein processors (locally, regionally, nationally or internationally). IPIFF has not submitted an application for insects as novel food products to the Commission.

The approach of the Member States on the implementation of the EU novel food transitional measure for whole insects and their preparations'

- EU countries in which national authorities have agreed to grant the novel food transitional measure to whole insects and/or their derived products.
- EU countries in which national authorities do not apply the novel food transitional measure, but have provided specific conditions (e.g. the transitional measure only applies to whole insects and not to powder derived from it, the implementation of the transitional measure is limited to certain administrative regions).
- EU countries in which national authorities took the position to deny the implementation of the transitional measure for applied insect-derived and advice position may be possible, following the Court of Justice of the European Union ruling (see question 8 for further details).
- EU Member States whose position is unknown to the authors at the time of drafting this document.
- Non-EU countries from which insects as food may not be placed on the EU market.
- Insect food products originating from those non-EU Member States may be placed on the market of those EU Member States which apply the transitional measure under national legislation. Once a novel food authorisation has been granted for a specific product, it can be exported to the EU.



Insects as food: recent regulatory developments and achievements

- 20+ 'novel food' (NF) applications transmitted for evaluation to the European Food Safety Agency;
- CJEU ruling on the 1st of October – 'whole edible insects' are not novel under Reg. 258/97;

First EFSA opinions on dried yellow mealworm (13 January 2021), *Locusta migratoria* (2 July 2021); *Acheta domesticus* (17 August 2021) and *Tenebrio molitor* (25 August 2021).

- These 4 products have been authorised for commercialisation on the EU market.



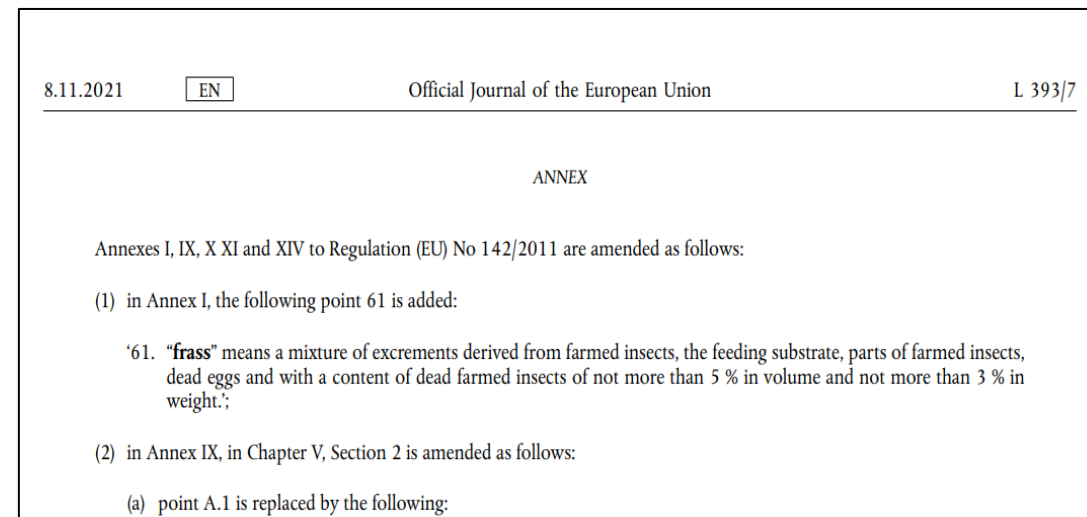
Establishment of EU baseline standards for processed insect frass

- Regulation 2021/1925 setting EU standards for insect frass (i.e. heat treatment of 70 ° C for at least 60 minutes, setting of microbiological standards) entered into force on 28 November 2021.
- The EU legislator also introduced a **definition for 'frass'**: *mixture of excrements derived from farmed insects, the feeding substrate, parts of farmed insects, dead eggs and with a content of dead farmed insects of not more than 5% in volume and not more than 3% in weight.'*
- BONUS: authorisation of *Bombyx mori* PAPs in feed for food producing animals (e.g. aquaculture + poultry and pigs).



IPIFF views on the recent reform

- IPIFF welcomes the adoption of (EU) Regulation 2021/1925 creating a baseline standards for insect frass
- The setting of **baseline heating processing standards** would contribute to **establishing a level playing field** amongst insect producers across Europe.
- Processed frass, complying with horizontal rules are **eligible for organic production**.
- In the longer run, we consider necessary to **develop tailor-made requirements** (i.e. 'end point' under the ABP legislation).



IPIFF Milestones

2012 - 2015

Jan 2012
FAO expert group explores the potential of Insects as food and feed and recommends to set up an international insect protein industry association

13 April 2015
IPIFF is formally created as EU umbrella organisation for insect producers

8 October 2015
EFSA risk profile opinion on insects as food and feed

2016 - 2019

13 December 2016
EU Member states approve the EC proposal to **authorise insect proteins in aqua feed** (effective since 1st July 2017)

January 2018
The 1st novel **food applications** covering insects for food have been submitted to the EC

22 February 2019
Submission to the European Commission of the **IPIFF Guide on Good Hygiene Practices**

2020 - 2021

20 May 2020
Publication of the **'EU Farm to Fork strategy'**

Achievements:
- 1st EU **'Novel food'** authorisations;

- Authorisation of insect PAPs in **poultry and swine feed**;

Setting EU harmonised standards for **insect frass**.

2022

Today

80 Members

From 23 countries worldwide and 14 EU Member States

Policy objectives:

-Support the authorisation of **new feeding substrates** for farmed insects;

-Development of EU regulatory standards for **'organic insect production'**;

-Monitoring EU policy initiatives under **'Farm to Fork strategy'** the EU '

II. Contributing to the F2F objectives – What is coming next



Supporting the EU ‘Farm to Fork’ Strategy

- ...‘fostering EU-grown plant proteins as well as alternative *feed materials* such as *insects*’ ...;

Moving towards a more healthy and sustainable EU food system, a corner stone of the European Green Deal



Make sure Europeans get healthy, affordable and sustainable food



Tackle climate change



Protect the environment and preserve biodiversity



Fair economic return in the food chain



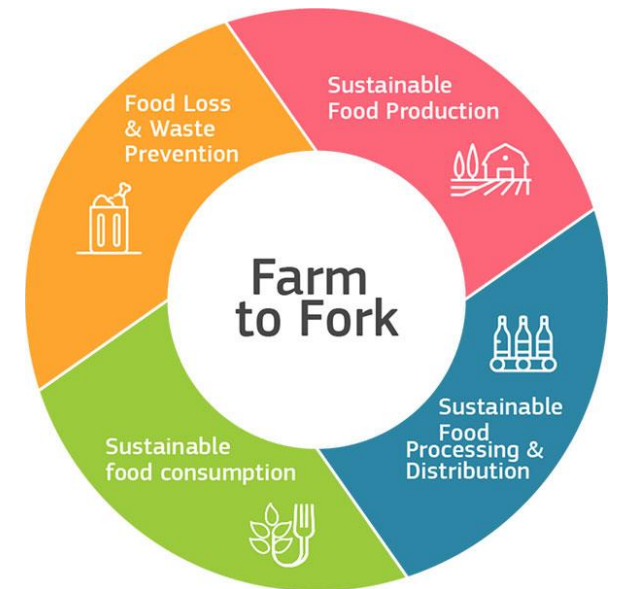
Increase organic farming

- ... ‘A *key area of research* will relate to (...) increasing the availability and source of alternative proteins such as plant, microbial, marine and *insect-based proteins*.’ ...;

Supporting the EU 'Farm to Fork' Strategy

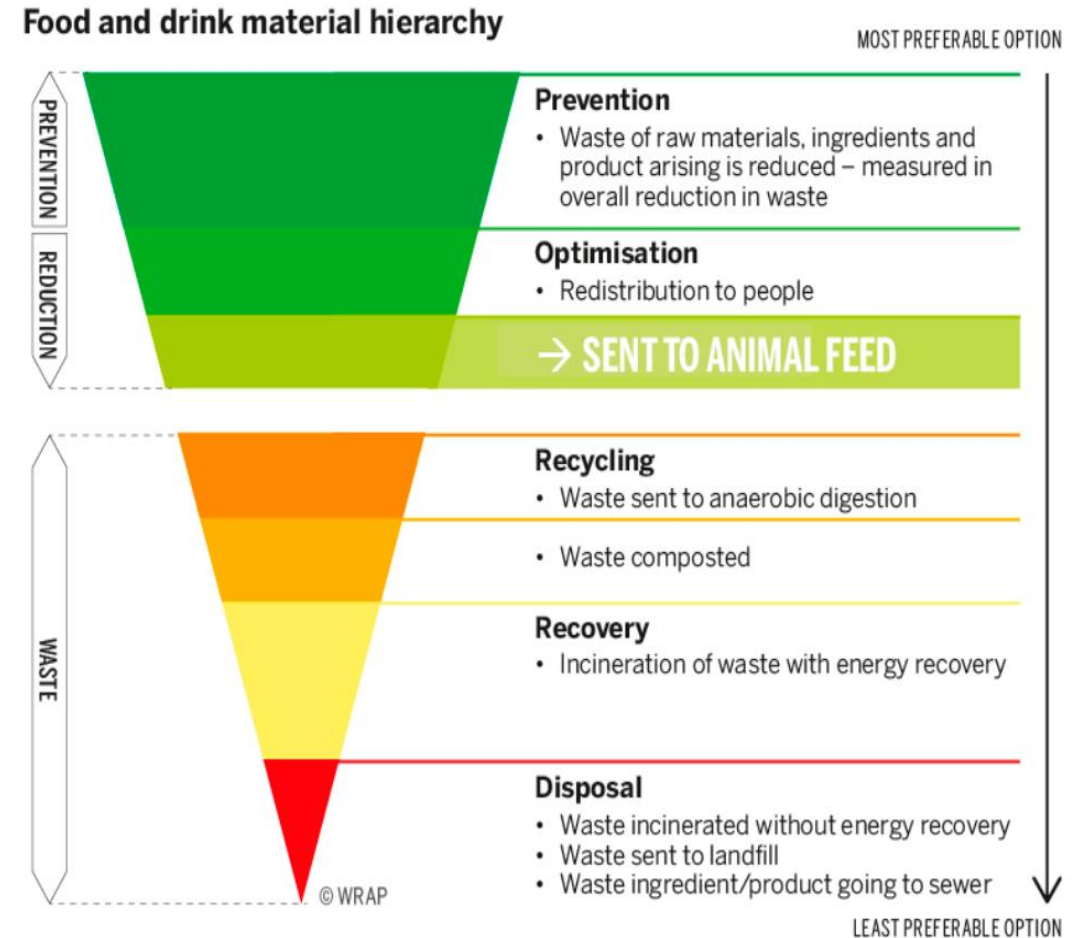
→ In our view, insect farming may contribute to several F2F objectives, such as:

- Strengthening local food and feed self-sufficiency (locally produced protein-rich food and feed ingredients);
- *'halving per capita food waste at retail and consumer levels by 2030 (SDG Target 12.3)'*;
- achieving *'at least 25% of the EU's agricultural land under organic farming by 2030 and a significant increase in organic aquaculture'*;
- improving animal health and welfare.



EU opportunities for authorising ‘new feeding substrates’

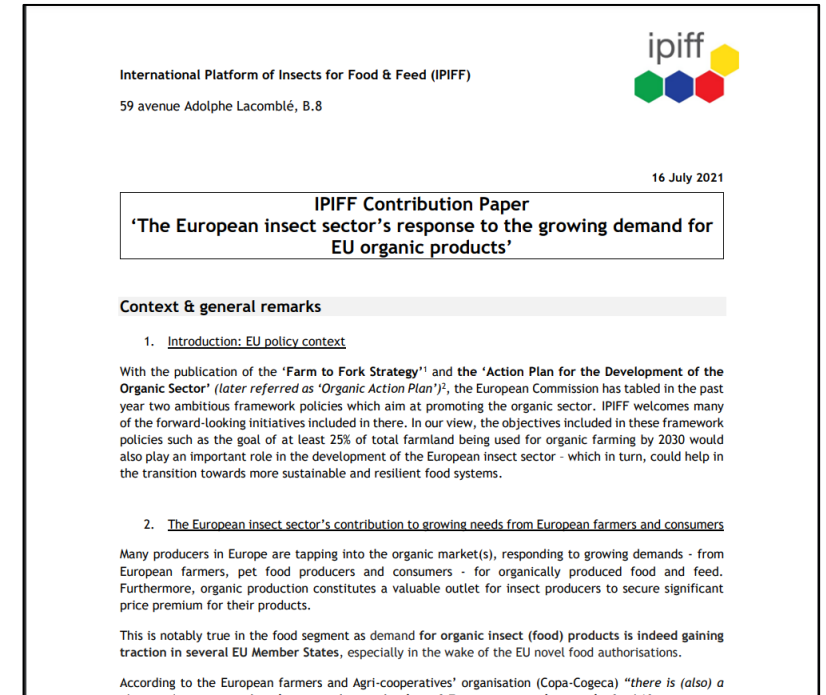
- Diversifying the spectrum of authorised substrates used in insect farming is considered as key to **reducing the footprint** of insect farming activities while representing a promising opportunity for **tackling the problem of food waste**.
- **About 30% of the food waste** (e.g. former foodstuffs, catering waste) generated in the EU could be suitable for insect farming activities.
- *‘IPIFF wishes to explore the possibilities for authorising former foodstuffs containing meat and fish and catering waste as insect feeding substrate (IPIFF Regulatory Brochure, May 2020).*




<https://www.elfpa.eu/reducing-food-waste/>

Insects for organic production

- The authorisation of insects in organically certified compound feed is directly influenced by the EU **'horizontal legislation'** (e.g. the recently lifted feed ban).
- Currently, there is a derogation for **organic poultry or swine juveniles (under 12 months)** – which may be fed with up to 5% non-organically certified feed.
- IPIFF supports and will contribute to the forthcoming EU discussions on setting **EU regulatory standards for insect organic production** (discussions to start as from Q2 of 2022).



EU regulatory standards for insect frass: next steps




International Platform of Insects for Food & Feed (IPIFF)
59 avenue Adolphe Lacomblé, B.8

strategic importance of the European insect sector: such regulatory step would indeed serve to recognise a Component Material Category (CMC) for insect frass as part of the EU Fertilisers Regulation⁵, thereby allowing its marketing as fertilising product across the European Union, in line with the general objectives of this legislation.

Based on the current EU regulatory standards⁶ combined with the conclusions from the aforementioned EFSA's opinion, we do consider that the temperature requirements of 70 °C for 60 minutes constitute an appropriate benchmark for establishing this 'end-point' for the commercialisation of processed insect frass as organic fertiliser and/or soil improver.

→ We were therefore wondering whether you would consider taking the above parameters as 'legal basis' for the European Commission to determine an 'end-point in the manufacturing chain for insect frass'.



Fact sheet on insect frass

1. What is frass?

The recent reform of the **European Union (EU)** legislation on animal by-products is of significant relevance for the European insect sector as it introduces the **first standards for insect frass** as fertilising product in agriculture. Building on the latest technical knowledge, these new norms should facilitate the development of a **level playing field** across the Member States (MS) of the EU by harmonising the processing conditions used for insect frass. In parallel, the EU legislator has **created a definition for insect frass** – an element of crucial importance in this process.

'X1. Frass' means a mixture of excrements derived from farmed insects, the feeding substrate, parts of farmed insects, dead eggs and with a content of dead farmed insects of not more than 5% in volume and not more than 3% in weight.

source: Commission Regulation (EU) 2021/1923.

Regulatory context

The first EU standards for the placing on the market of processed insect frass follow the discussions between Member States' experts and EU Commission officials (the legal text was then formally endorsed by the Council of the European Union and the European Commission in accordance with applicable EU procedures). The recently adopted piece of legislation amends the Annex I and Annex XI of Regulation (EU) No 142/2011 by aligning the standards for the placing on the market of frass with those applying to processed animal manure. More specifically, frass treated at 70 degrees Celsius for one-hour (i.e. complying with the above-definition and the relevant microbiological standards from Annex XI, Chapter 1, section 4) will be allowed on the markets of EU Member States, in line with the national authorisation procedures.

While frass was already subject to certain authorisation procedures at national level (i.e. before the entry into force of this text), the EU legislator foresees a transitional measure in order to assist operators in complying with these new norms at Union-level (more information in section 07).

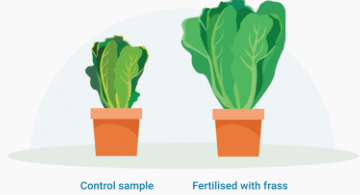
What is the objective of this factsheet?

This document aims at providing an overview of the latest regulatory changes related to the use of insect frass as fertilising product in agriculture. Complementary, this document will also present an overview of the **benefits of insect frass** (section 02), the **implications** of the latest legislative reform (section 03), as well as a quick summary of **manufacturing practices** followed by insect producers (section 04).


2. What are the benefits of insect frass?

Similar to compost or other types of animal manure, frass is a valuable by-product derived from insect farming activities. The **application of frass on agricultural land** – consistent with the principles of circular economy – closing the loop of insect farming by **reintroducing relevant nutrients and organic matter** in the soil. The valorisation of frass as fertilising product makes insect farming a 'zero waste' activity. Moreover, frass has proven benefits on soil and plant health, such as those listed below:


- 01 – **provides macro- and micro-nutrients to the soil:** from a chemical point of view, frass has concentrations of N, P and K similar to those found in animal manure (e.g. poultry manure). Studies and trials confirm its high potential as fertiliser material, providing minerals that are easily assimilated by the plants. Thanks to the presence of nutrients in a readily available form, insect frass is an efficient natural NPK fertiliser. It increases the biomass and the nutritional content in crops such as **vegetables** (e.g. lettuce), **grains** (e.g. barley, wheat, maize, rye) and **specialty crops** (e.g. rhubarb). The addition of frass provides for a slow release of nutrients ensuring efficient use of micro- or macro-nutrients.
- 02 – **supplies organic matter that enhances microbiological activity in soil:** as frass consists primarily of organic matter, its application improves the soil organic carbon content – as well as other relevant soil parameters, such as water holding capacity. In addition, the use of insect frass as organic fertiliser in agriculture adds beneficial microorganisms and bioturbators relevant for soil and plant health.
- 03 – **increases plant tolerance to abiotic stresses and resistance to pathogens:** due to the presence of different compounds and microorganisms, the application of frass increases the tolerance of the seedlings against stress factors such as drought, flooding, and salinity. In addition, several studies highlight the role of frass in activating plant defence responses – while also inhibiting the growth of certain pathogens/fungi. Such mechanisms are believed to be linked to the presence of chitin (i.e. the main chemical from the exoskeleton on insects – and the second most abundant biomolecule in the world after cellulose). Lastly, it has been hypothesized that frass showed insecticidal qualities because it was proven to reduce wireworm populations.




Activity 1: establish tailored standards under the EU animal by-products' legislation

Activity 2: creation of a legal basis under the EU fertilisers' legislation



Knowledge platform on 'insect frass'

Dialogue with EU policy makers as regards the setting of tailored standards

Feeding of whole treated insects to farmed animals: IPIFF proposals

IPIFF position paper on the use of insect larvae as feed for food producing animals

Contextual elements

1. General background

Insect production generates different outputs which may be used in animal feed, ranging from insect larvae, either alive or 'treated' (e.g. dehydrated, freeze dried), to insect meal (defatted or un-defatted) or oil.

Dead (and treated) insect larvae present numerous advantages when used as feed for livestock production (e.g. feed complement) and/or for enticing properties (e.g. used as environmental enrichment in poultry husbandry for its similarity to invertebrates eaten naturally by such animals). These products have indeed proven to entail beneficial effects on the health and welfare of farmed animals, which contributed to the **rapid emergence of this market outlet** in several EU countries.

Insects as feed - Regulation (EU) No 609/2013 on the Catalogue of feed materials	Aquaculture	Poultry	Pigs	Pets	Fur and other animals (e.g. bees)	Technical uses (e.g. cosmetic industry, bio-based fertilizers, production of other bio-based materials such as bioplastics)
Insect proteins (under entry 9.4.1. 'Processed animal proteins')	✓**	✓**	✓**	✓	✓	✓
Insect fats (under entry 9.2.1 'Animal fats')	✓	✓	✓	✓	✓	✓
Whole insects (under entry 9.3.2. 'Terrestrial invertebrates, dead')	✗	✗	✗	✗	✓.	✓
Whole insects (under entry 9.3.2. 'Terrestrial invertebrates, dead')	✗	✗	✗	✓.	✓.	✓
Live insects (under entry 9.3.1 'Terrestrial invertebrates, live')	✓.	✓.	✓.	✓.	✓.	✓
Hydrolysed insect proteins (under entry 9.4.1. 'Hydrolysed animal proteins')	✓	✓	✓	✓	✓	✓

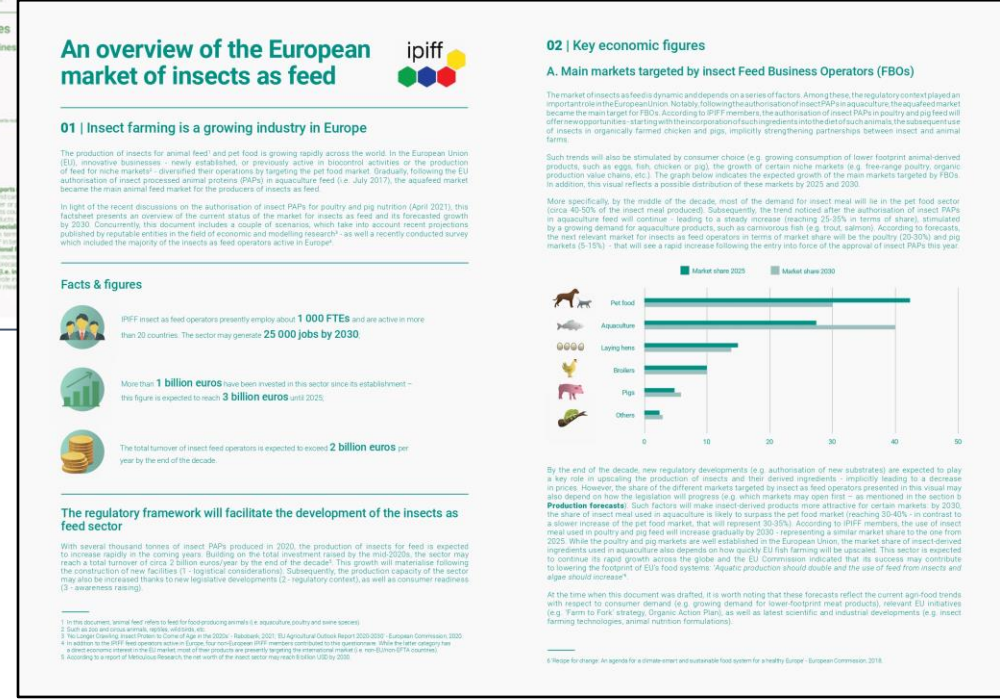
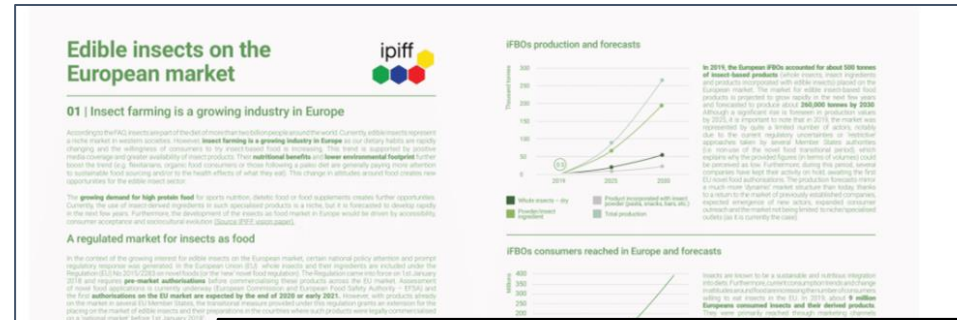
Legend: Overview of EU regulatory possibilities for feeding whole insect larvae to farmed and non-farmed animals. IPIFF Guide on Good Hygiene Practices - (updated version September 2021) (p 73)

IPIFF pleads for the **establishment of EU tailored rules** - the framework of the EU ABP legislation – in order to regulate the use of these products (i.e. alignment with rules applying to insect PAPs intended as feed for farmed animals).

main parameters of such method would be based on criteria foreseen for the **existing method 7**.

The list of **insect species** which might be used as feed for farmed animals will be **aligned with the ones** which are currently allowed for use as **PAPs for farmed animals**.

Main IPIFF publications



Regulatory Brochure, Guide on Good Hygiene Practices, Market factsheets and others – available on our website -www.ipiff.org



Thank you for your attention!

CONTACT US

IPIFF's Secretariat,

Avenue Adolphe Lacomblé 59,

BTE 8 B-1030, Brussels, Belgium

+32 (0)2 743 29 97

info@ipiff.org



[@IPIFF_org](https://twitter.com/IPIFF_org)



IPIFF (International Platform
of Insects for Food and Feed)