

“Valuable insects: an emerging source of protein in Europe”

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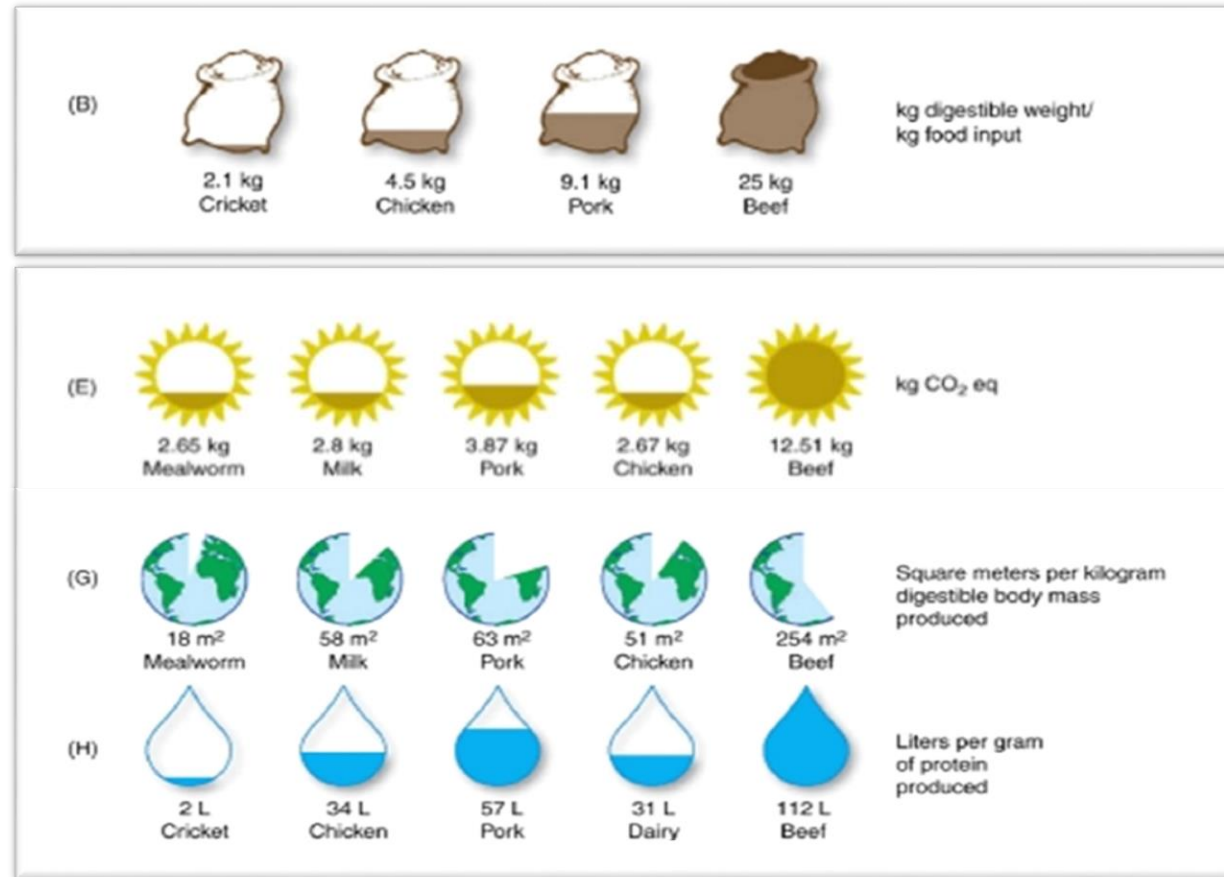
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Why insects?

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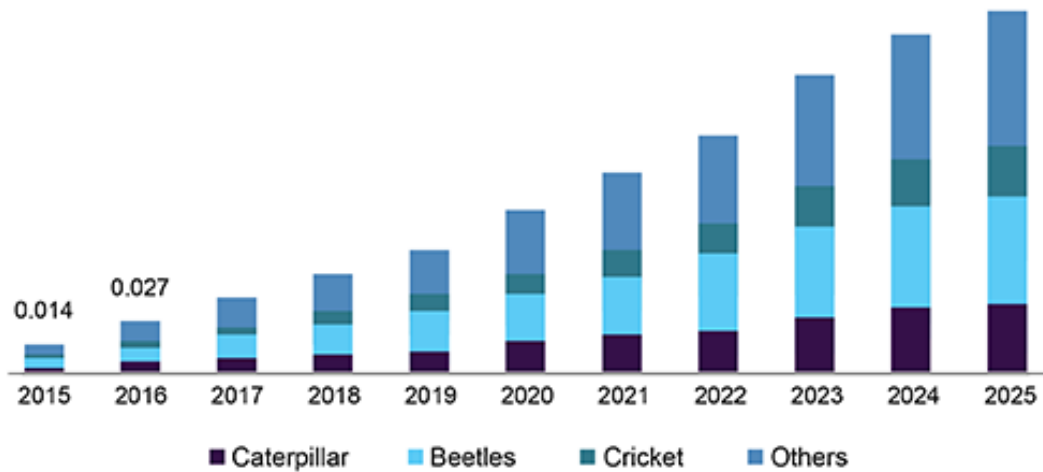
1. Why insects?



Adapted from Raheem D, Raposo A, Oluwole OB, Nieuwland M, Saraiva A, Carrascosa C. (2019) *Entomophagy: Nutritional, ecological, safety and legislation aspects*. Food Res Int.; 126:108672.

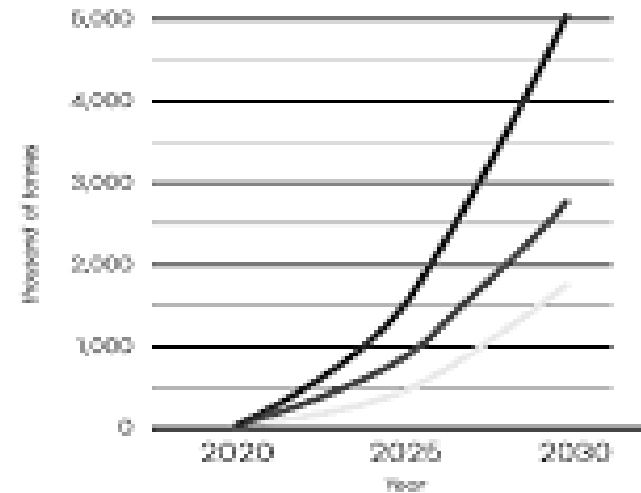
1. Why insects?

U.S. edible insects market size, by product, 2015 - 2025 (USD Billion)



Source: www.grandviewresearch.com

Estimated volumes of production of insect protein until 2030 in Europe (in thousands of tonnes)



Legislation "unlocked"

IPIFF forecast

Legislation "locked"

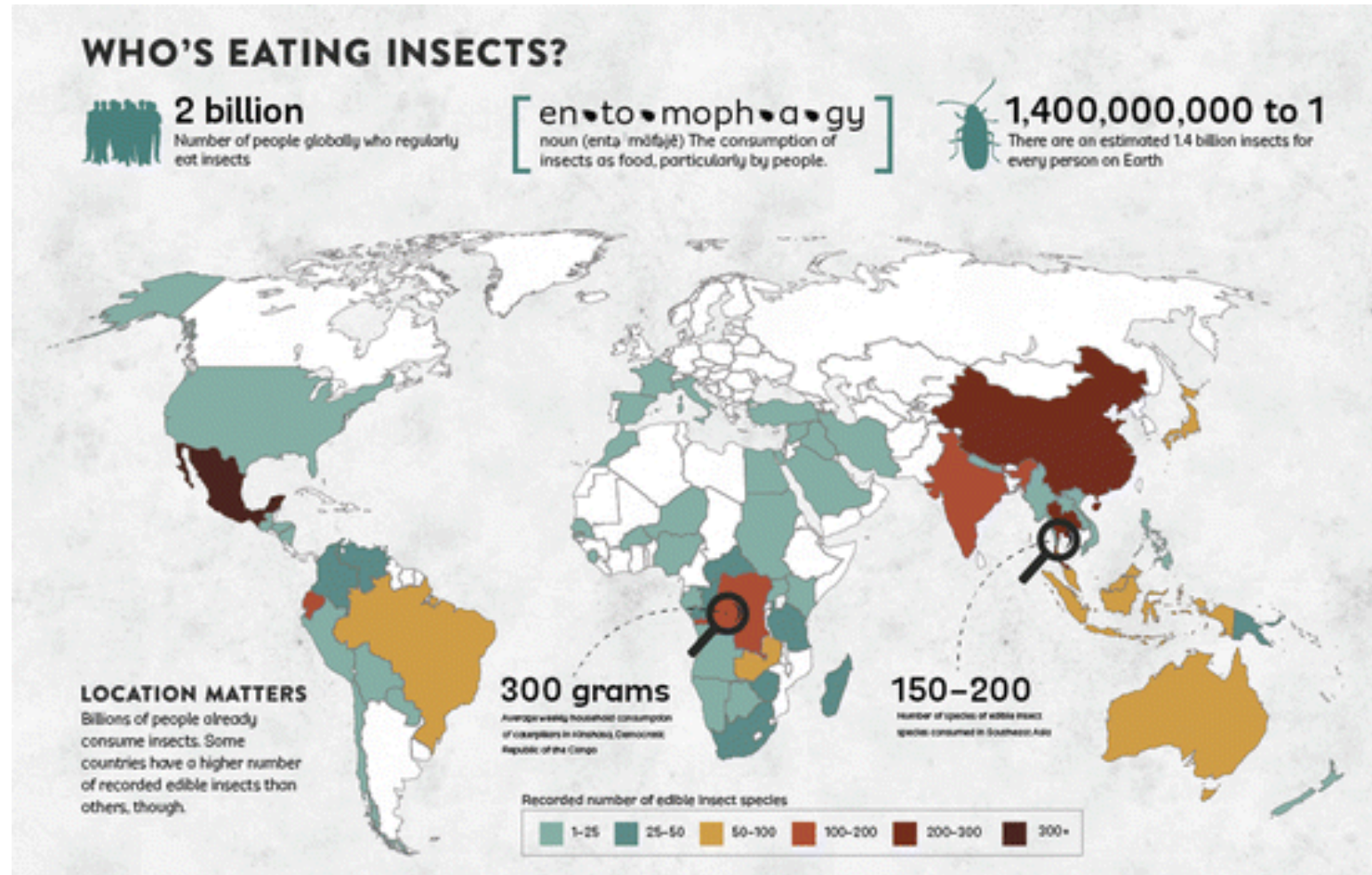
1. Why insects?

Some facts about insects as food at global scale

- More than 2 billion of people consume insects regularly
- More than 1000 species have been described as part of a diet



1. Why insects?



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1. Why insects?

- Excellent source of high quality protein and essential amino acids

Insect species	Protein content
Mealworms	49.1% on dry basis
	19.1% on fresh weight
Crickets	21.5% on fresh weight
	73.1% on dry basis
Locusts	13-28g/100g fresh weight
	42.1-58.6% on dry basis

These three insect species can claim 'high in protein'.

All the essential amino acids are present at different levels

Essential amino acids are those that we need get from our diet.

European regulatory framework

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2. Current legislative framework in Europe

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(Legislative acts)

REGULATIONS

REGULATION (EU) 2015/2283 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 25 November 2015

on novel foods, amending Regulation (EU) No 1169/2011 of the European Parliament and of the Council and repealing Regulation (EC) No 258/97 of the European Parliament and of the Council and Commission Regulation (EC) No 1852/2001

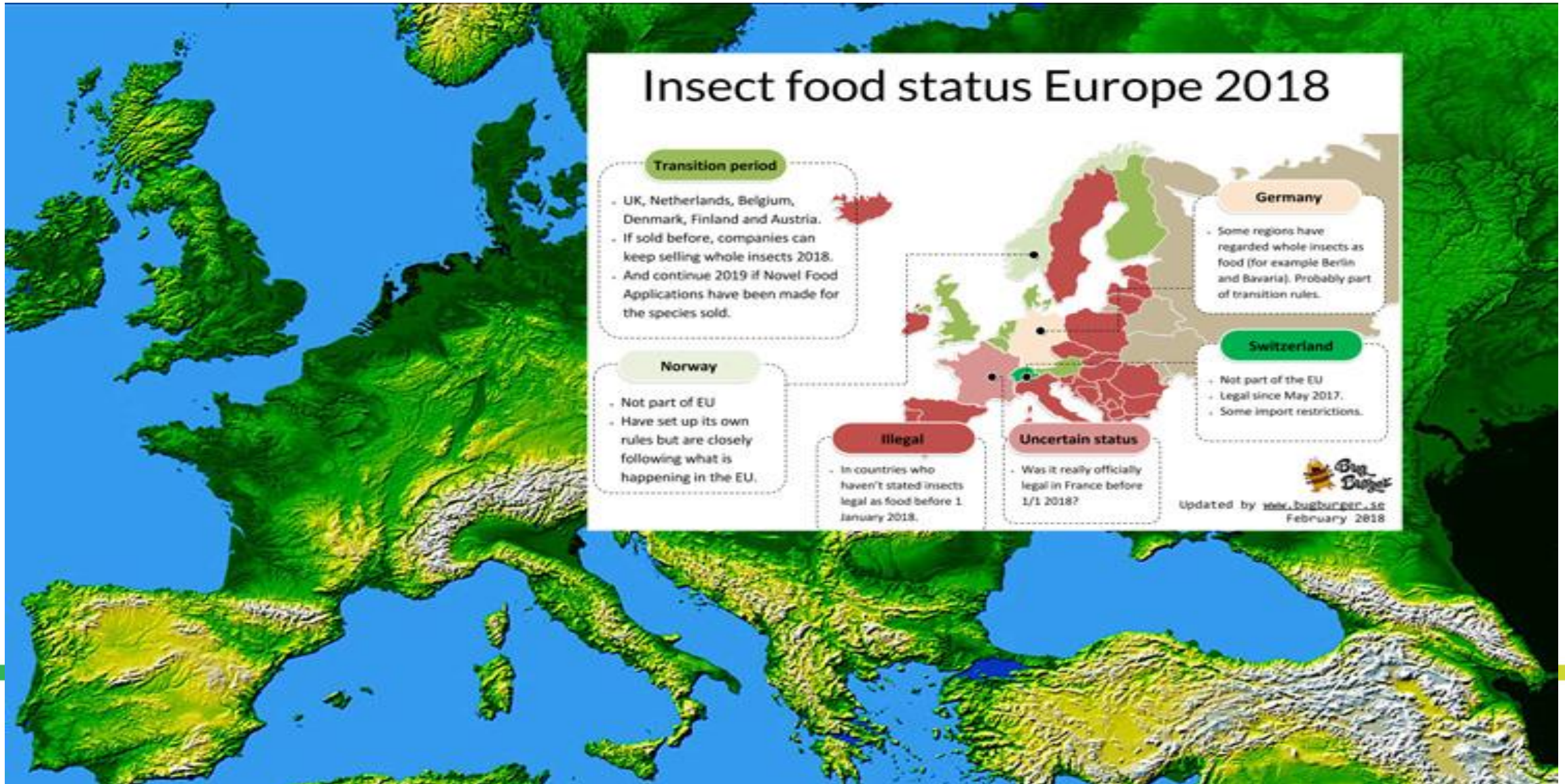
(Text with EEA relevance)

- Insect production regardless of purpose
 - EU Animal Health Regulation
 - Animal Feed Marketing
- Insects produced for food: Novel food legislation 1997
 - Replaced by [Regulation \(EU\) 2015/2283](#), applicable from 2018.
 - Food not regularly consumed before 1997, is considered a novel food.



2. Current legislative framework in Europe

- Some countries already permit the commercialisation of insect and insect based products



2. Current legislative framework in Europe

Insects currently approved to be commercialised in some European countries

Locusts



Crickets



Mealworms



2. Current legislative framework in Europe

- Future of insects seems to be more favourable

This article is more than 7 months old

Edible insects set to be approved by EU in 'breakthrough moment'

Food safety agency's decision could put mealworms, locusts and baby crickets on menus



European insect sector applauds new policy shift in anticipation of first "novel food" authorizations

15 Oct 2020 --- Europe's burgeoning edible insects market is gaining traction due to a new policy shift that paves the way for its first "novel food" authorizations expected next year.

Novel food is defined as food that had not been consumed to a significant degree by humans in the EU before 15 May 1997, when the first Regulation on novel food came into force.

The International Platform of Insects for Food and Feed (IPIFF) – a European association of insect producers – states this is significant as it may put an end to the uncertainty that insect producers of such products have been facing.



EDITORS' PICK | APR 9, 2020, 07:29AM EDT

Edible Insects Most Likely Coming To European Supermarkets Soon



Alex Ledson Senior Contributor @
Travel
I write about travel, culture, food & drink.

In a landmark decision, the E.U.'s European Food Safety Authority is expected to approve the sale of insects for human consumption. It means that for the first time, there will be a huge raft of edible insects on sale across European countries and new opportunities in the food industry.



2. Current legislative framework in Europe

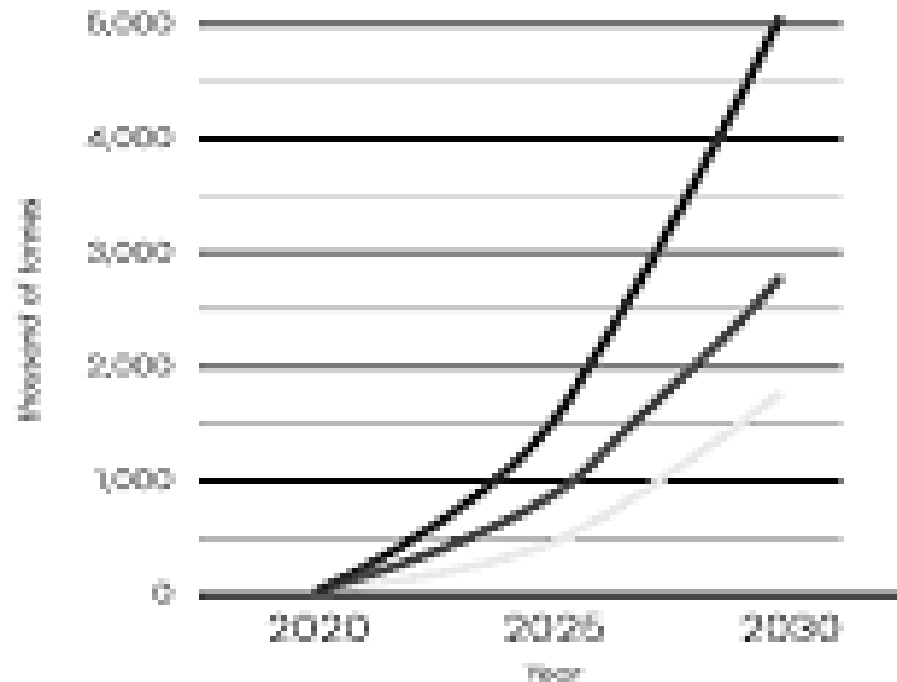
- Future of insects seems to be more favourable

Estimated volumes of production of insect protein until 2030 in Europe (in thousands of tonnes)

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Edible insects set to be in 'breakthrough moment'

Food safety agency's decision could put mealworms and crickets on menus



Legislation "unlocked"

IPIFF forecast

Legislation "locked"

likely

Food Safety Authority is in consumption. It is a raft of edible insects opportunities in the food



association of insect producers – states this is significant as it may put an end to the uncertainty that insect producers of such products have been facing.

2. Current legislative framework in Europe



- Food Safety (FSAI advice):
 - Commission Regulation (EC) No 2073/2005 Needs to be revised before any criteria for insects are included (Still not enough information available).
 - Minced Meat Regulation as guideline ([Regulation \(EC\) No. 1441/2007](#)) (Ng'ang'a et al., 2019)
 - In any case Food Business Operators (FBO) are required to protect human health ([Regulation \(EC\) No 178/2002](#))

What we know and what we need to investigate further

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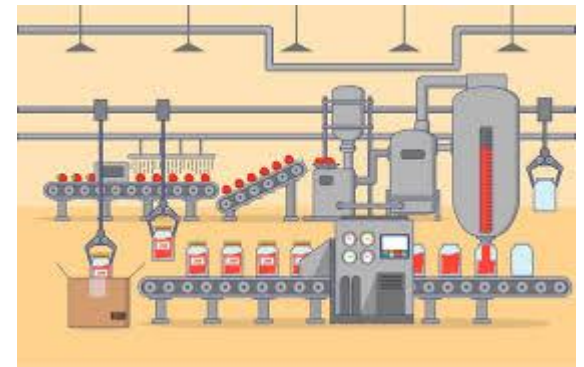
3. What we know about insects as food or ingredients

- Rearing practices
- Nutritional quality (essential amino acids)
- Functionality as ingredient
- Fat, ash and moisture content
- Simple processing technologies
- Consumer acceptance for whole insects



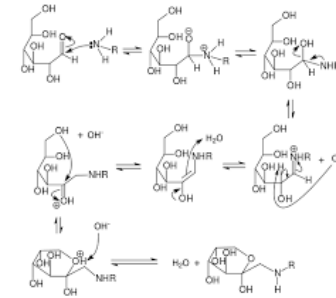
4. What we need to investigate further

- How to improve the efficiency of rearing and how to use food co-products and by-products as substrates
- Effects of processing on nutritional quality
- Effects of processing on functionality



4. What we need to investigate further

- How to enhance protein functionality by further modification
- Potential of insect protein as source of bioactive compounds
- Consumer attitudes towards new formulations
- Safety of insect products (allergens, pathogens, toxins...)



The Valusect Project

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5. The ValuSect project

Ten partners from five countries (Ireland, Belgium, Netherlands, UK & Switzerland).

- Research institutions
- Public agencies
- Insect producers
- Marketing



5. The ValuSect project

Aims and objectives







- a) Investigate the use of food co-products as substrates
- b) Determine the impact of substrates and processing practices on the nutritional and functional properties of final products
- c) Survey on already marketed products to determine shelf life, nutritional values, etc.
- d) Consumer studies and sensory panels



5. The ValuSect project

- Provide knowledge and support to companies interested in any aspect of insect based products (voucher scheme).
- A total of **40 vouchers** of **€10K, €20K or €40k** for eligible SMEs based in the NWE region (UK, Ireland, Belgium, Netherlands).
- Manual of services
- Two calls with two application stages: 31-12-2020 and towards the end of next year.

5. The ValuSect project

	1  Technological services	2  Food development and innovation	3  Consumer acceptance	4  Strategic business services
WHAT can we do:	<p>Expertise and/or equipment to:</p> <ul style="list-style-type: none"> • develop, • implement, • optimize/improve • exploit <p>new processes and/or (insect-)products</p>	<p>Development of technologies and concrete recipes including insects as ingredient. (production process, product development, safety, quality aspects)</p>	<p>Strategic and systematic research on acceptability of insect products amongst individual target groups</p>	<p>To support the development of your business (model) by adopting innovative ideas, products, processes or services.</p>

Are you eligible? Check criteria:	<p>Check whether you should apply:</p> <ul style="list-style-type: none"> <input type="checkbox"/> SME* <input type="checkbox"/> Located in North-western Europe region <input type="checkbox"/> You are or want to become part of the value-network of the insect as food market <input type="checkbox"/> You have an innovative idea supporting the development of the insect business in Europe <input type="checkbox"/> You can explain how the development/implementation of the idea supports the acceleration of the insect business in Europe <input type="checkbox"/> You can find supportive services in the ValuSect offerings (see overview above and full description in the “ValuSect Menu of Services”) <input type="checkbox"/> You submit your application before 31.12.2020 2020 (open call) <input type="checkbox"/> You submit all required documents (application form, SME Declaration, De minimis self-declaration for SMEs, Data Privacy Policy, which addresses the aspect of data privacy)
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5. The ValuSect project

Teagasc role

- Leader in WP T2: Quality Improvement of Processing
- Partner in
 - WPT1 (looking for novel feed sources)
 - WPT3 (consumer analysis)
 - WPT4 (voucher scheme)
- Facilitate access to the Prepared Consumer Food Centre (PCFC)
(<https://www.teagasc.ie/food/prepared-consumer-food-centre/>)
- Selection of companies eligible for voucher scheme

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6. Take home messages

- Insects are a growing and promising source of high quality proteins
- Legislative framework is getting more favourable for insect production
- This is a new market in Europe, and many questions need to be answered
- The ValuSect project intends to answer these questions, while giving support to SMEs operating in the agri-food sector

Thank you

Questions

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