



# ENTOMO CONVERSION

## Newsletter on Insects for feed, food and bioconversion of organic substrates

Items published between 27 september and 25 november.

This newsletter is produced by a research team on entomoconversion and the "Direction pour la Science Ouverte" (DipSO). It is the result of multi- source monitoring (media, articles, ...).

### Scope :

- **Europe/France**
- **Thematics axes** : insects (*Tenebrio molitor* et *Hermetia Illucens*) , substrates (organic waste, by-products, ...), industrial applications and products (frass, fertilizer, ...)
- **Sources** : articles, information on ongoing and completed projects, regulatory documents, calls for expressions of interest, private sector activities.

**Note** : Items in this newsletter do not represent INRAE's position.

### Call for proposals, call for tenders,

- o Biodiversité : aidez-les à recenser des insectes en Nouvelle-Aquitaine !
- o "Développer les protéines végétales et diversifier les sources de protéines" Volet 2 – Diversification des sources de protéines pour l'alimentation, i.e. la valorisation d'algues, co-produits issus de plantes, insectes et micro-organismes
- o ERC Synergy Grant projects and researchers | University of Helsinki

### Substrate - media

- o A mealworm for Mars
- o In snacks, flour or energy bars, insects are already a dish of the day
- o Watch Now: Singapore-based company is using insects and food waste to help feed people
- o Incorporating edible insects into diet: What does the future hold for mealworm and cricket-based food?
- o Findings discover rise of beneficial bacteria in poultry gut with black soldier fly-based diets
- o Arable farmers' innovation decision process towards using by-products of insect production - WUR
- o EU policy and insect alternative protein, panacea or chimaera?
- o 'Insect suit' carries plastic-eating mealworm colonies, sheltered by human body heat
- o How An Insect And A Microbe Are Being Used To Upcycle Tropical Crop Waste Streams
- o Friend or Foe? Know Your Beneficial Insects From Their Crop Pest Look-Alikes

o Vienna's LIVIN Farms Receives €6 million to Upcycle Food Waste Into Insect-Powered Protein - The Spoon

## **Substrate - articles**

- o Principles for the responsible use of farmed insects as livestock feed | Nature Food
- o Food industry waste - An opportunity for black soldier fly larvae protein production in Tanzania.
- o Use of fermented spent coffee grounds as a substrate supplement for rearing black soldier fly larvae, *Hermetia illucens* (L), (Diptera: Stratiomyidae)
- o Comparative protein quality in black soldier fly larvae meal vs. soybean meal and fish meal using classical protein efficiency ratio (PER) chick growth assay model
- o Dynamic modelling of feed assimilation, growth, lipid accumulation, and CO<sub>2</sub> production in black soldier fly larvae
- o Effects of chicken waste meal and vegetable substrate fed black soldier fly prepupae meal on rainbow trout (*Oncorhynchus mykiss*)
- o Dietary *Tenebrio molitor* Larvae Meal Inclusion Exerts Tissue-Specific Effects on Cellular, Metabolic, and Antioxidant Status in European Sea Bass (*Dicentrarchus labrax*) and Gilthead Seabream (*Sparus aurata*)
- o Influence of Different Diets on Growth and Nutritional Composition of Yellow Mealworm
- o Residues from black soldier fly (*Hermetia illucens*) larvae rearing influence the plant-associated soil microbiome in the short term
- o Toxics, Vol. 10, Pages 608: Effects of Polystyrene Diet on the Growth and Development of *Tenebrio molitor*
- o Replacement of soybean oil by *Hermetia illucens* fat in turkey nutrition: effect on performance, digestibility, microbial community, immune and physiological status and final product quality
- o Impact of substrate contamination with mycotoxins, heavy metals and pesticides on the growth performance and composition of black soldier fly larvae (*Hermetia illucens*) for use in the feed and food value chain
- o *Tenebrio Molitor* Meal in Rainbow Trout (*Oncorhynchus Mykiss*) Diets: Effects on Animal Performance, Nutrient Digestibility and Chemical Composition of Fillets
- o Effects of different levels of *Hermetia illucens* larvae meal on performance, egg quality, yolk fatty acid composition and oxidative status of laying hens
- o In Vitro Crude Protein Digestibility of *Tenebrio Molitor* and *Hermetia Illucens* Insect Meals and its Correlation with Chemical Composition Traits
- o Gut microbiota shift in layer pullets fed on black soldier fly larvae-based feeds towards enhancing...
- o Foods, Vol. 11, Pages 3075: Influence of Different Diets on Growth and Nutritional Composition of Yellow Mealworm
- o Towards circular agriculture – exploring insect waste streams as a crop and soil health promoter
- o Growth performance of the black soldier fly, *Hermetia illucens* larvae (Linnaeus, 1758) fed on honeybee propolis-treated wheat bran

## **Product - media**

- o What is the future of insect protein in the pet food industry?
- o LCA points to environmental benefits of insect meal
- o Insect protein in poultry diets gaining momentum in EU
- o Insect protein – A sustainable alternative
- o Unlocking the real value of insect meal
- o Why Africa Should Invest in Insect-Composted Organic Fertilizer

## **Product - articles**

- o Integrative Metabolomics for Assessing the Effect of Insect (*Hermetia illucens*) Protein Extract on Rainbow Trout Metabolism
- o The interplay of larval age and particle size regulates micro-polystyrene biodegradation and development of *Tenebrio molitor* L
- o Agronomy, Vol. 12, Pages 2459: The Effects of Insect Frass Fertilizer and Biochar on the Shoot Growth of Chicory and Plantain, Two Forage Herbs Commonly Used in Multispecies Swards
- o Can the inclusion of black soldier fly (*Hermetia illucens*) in diet affect the flesh quality/nutritional traits of rainbow trout (*Oncorhynchus mykiss*) after freezing and cooking?

## **Industrials applications - media**

- o Insect Feed Market 2023-2028 Growth Analysis with CAGR of 11.7%, Share, and consumption by Regional data, Investigation and Growth, Demand by Regions, Types and Analysis of Key Players- Research Forecasts

- O Press Release - IPIFF highlights the strategic importance of the insect-producing sector to support the realisation of the EU Farm to Fork targets – International Platform of Insects for Food and Feed, Brussels
- O Insects as an alternative protein source - All About Feed - All About Feed
- O Watch Now: Singapore-based company is using insects and food waste to help feed people - KoamNewsNow.com
- O Singapore-based company is using insects and food waste to help feed people - Billings Gazette
- O "Farmed insects fit in the durable food system" Edible insects can use the organic residual streams from agriculture and the food sector and make new food or feed from them. In this way, they may make food systems more sustainable. 'Farmed insects can contribute to a sustainable food system, but for....
- O Insect Protein Offering 'Green' Livestock Feed Alternative as Market Demand Soars
- O A look inside the Asia insect-for-feed industry - All About Feed - All About Feed
- O A look inside the Asia insect-for-feed industry
- O Europe Region to Attract Manufacturers' Attention in the Black Soldier Fly Market through 2032
- O Insect Feed Market Growth, Future Demand, Key Players & Forecast 2031
- O Insects, algae oil and plants: 3 ways Cargill is helping feed animals more sustainably than ever | Cargill
- O Expansion Of The Aquaculture Industry Boosting The Global Black Soldier Fly Market Growth
- O Creating circular economy for animal feed with insects
- O Why Insects Could be Ideal for the Future of Animal Feed and Food
- O Developing insect production chain for animal feed, French platform Invers picks up €15 million

### **Industrials applications - articles**

- O Insects, Vol. 13, Pages 1073: Combined Jasmonic Acid and Ethylene Treatment Induces Resistance Effect in Faba Bean Plants Against *Frankliniella occidentalis* (Pergande) (Thysanoptera: Thripidae)
- O No neonates without adults: A review of adult black soldier fly biology, *Hermetia illucens* (Diptera: Stratiomyidae): A review of adult black soldier fly biology, *Hermetia illucens* (Diptera: Stratiomyidae)
- O Performance evaluation of black soldier fly larvae fed on human faeces, food waste and their mixture
- O Monitoring Compositional Changes in Black Soldier Fly Larvae (BSFL) Sourced from Different Waste Stream Diets Using Attenuated Total Reflectance Mid Infrared Spectroscopy and Chemometrics
- O Sustainability, Vol. 14, Pages 13993: Black Soldier Fly Larvae (*Hermetia illucens*) for Biodiesel and/or Animal Feed as a Solution for Waste-Food-Energy Nexus: Bibliometric Analysis
- O [hal-03828642] Edible Insects' Transformation for Feed and Food Uses: An Overview of Current Insights and Future Developments in the Field
- O Agriculture, Vol. 12, Pages 1628: Tropical Plant Phytonutrient Improves the Use of Insect Protein for Ruminant Feed
- O Black soldier fly full-fat meal in Atlantic salmon nutrition – Part A: Effects on growth performance, feed utilization, selected nutrphysiological traits and production sustainability in fries

# Call for proposals, call for tenders,

Sources : ANR, Horizon Europe, BPI...



15/11/2022

## Biodiversité : aidez-les à recenser des insectes en Nouvelle-Aquitaine !

Un programme de grande envergure, appelé "Entomo-NA", vient d'être lancé. L'objectif : recenser les insectes de Nouvelle-Aquitaine pour éviter ...

[france3-regions.francetvinfo.fr](http://france3-regions.francetvinfo.fr)

09/11/2022

## "Développer les protéines végétales et diversifier les sources de protéines" Volet 2 – Diversification des sources de protéines pour l'alimentation, i.e. la valorisation d'algues, co-produits ...

Un premier volet porte sur les protéines de légumineuses ; un appel à projets sur ce sujet a été lancé en décembre 2021. Ce deuxième volet concerne principalement les voies de diversification des sources de protéines pour l'alimentation : va...

[www.appelsprojetsrecherche.fr](http://www.appelsprojetsrecherche.fr)



10/10/2022

## ERC Synergy Grant projects and researchers | University of Helsinki

One project ongoing at the University of Helsinki is currently funded with a Synergy Grant awarded by the European Research Council (ERC). Read ...

[www.helsinki.fi](http://www.helsinki.fi)

# Substrate - media

Sources : mainstream media, regulatory sources, institutionnal, company,...



21/11/2022

## A mealworm for Mars

...

[www.wur.nl](http://www.wur.nl)

[tenebrio molitor](https://www.tenebrio-molitor.com)

09/11/2022

## In snacks, flour or energy bars, insects are already a dish of the day

Tek Deeps In snacks, flour or energy bars, insects are already a dish of the day The history of Portugal Bugs began in 2016, when Guilherme Pereira, ...

[tekdeeps.com](http://tekdeeps.com)



03/11/2022

## Watch Now: Singapore-based company is using insects and food waste to help feed people

... bugs can be. From recycling food waste to being used to ...

[food.einnews.com](http://food.einnews.com)

21/10/2022

## Incorporating edible insects into diet: What does the future hold for mealworm and cricket-based food?

21 Oct 2022 --- Mealworms and crickets are edging closer to EU plates following the latest round of approvals, as commercialization of alternative products...

[www.foodingredientsfirst.com](http://www.foodingredientsfirst.com)

[tenebrio molitor](#)



21/10/2022

## Findings discover rise of beneficial bacteria in poultry gut with black soldier fly-based diets

Black soldier fly-based meals can increase beneficial bacteria in poultry gut, thus promoting health and growth of birds and preempting over-reliance ...

[www.efeedlink.com](http://www.efeedlink.com)

[hermetia illucens](#)



18/10/2022

## Arable farmers' innovation decision process towards using by-products of insect production - WUR

Summary

Innovations are needed to help farmers promote crop and soil health in a more natural way. One such innovation comes from the insect ...

[www.wur.nl](http://www.wur.nl)

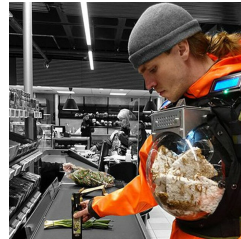


11/10/2022

## EU policy and insect alternative protein, panacea or chimaera?

Insect farming is not necessarily compatible with a more sustainable food system. It raises new animal welfare issues and, as an industry, it ...

[www.feedandadditive.com](http://www.feedandadditive.com)



10/10/2022

## 'insect suit' carries plastic-eating mealworm colonies, sheltered by human body heat

'insect suit' uses human body heat generated through movement to house plastic-eating mealworm colonies that harvest protein. The post 'insect ...

...

[www.designboom.com](http://www.designboom.com)

[tenebrio molitor](#)



07/10/2022

## How An Insect And A Microbe Are Being Used To Upcycle Tropical Crop Waste Streams

By pairing insects with a bacterium, this young company is able to upcycle the waste from palm oil production and turn it into valuable animal ...

[www.forbes.com](http://www.forbes.com)

[hermetia illucens](#)



28/09/2022

## Friend or Foe? Know Your Beneficial Insects From Their Crop Pest Look-Alikes

Can you spot them? Here's how growers can distinguish between good bugs and bad bugs. The post Friend or Foe? Know Your Beneficial Insects From ...

[www.growingproduce.com](http://www.growingproduce.com)

28/09/2022

## Vienna's LIVIN Farms Receives €6 million to Upcycle Food Waste Into Insect-Powered Protein - The Spoon

Vienna's LIVIN Farms Receives €6 million to Upcycle Food Waste Into Insect-Powered Protein The Spoon

[thespoon.tech](https://thespoon.tech)

[hermetia illucens](#)

## Substrate - articles

Sources : HAL, Pubmed, BASE, MDPI, F100Research, Journal of Insects as Food and Feed, ...

09/11/2022

### Principles for the responsible use of farmed insects as livestock feed | Nature Food

Alejandro Parodi, Allyson F. Ipeam, Hannah H, E. Van Zanten, J. Elizabeth Bolhuis, Joop J.A, Van Loon & Imke J.M. De Boer

[www.nature.com](https://www.nature.com)

07/11/2022

### Use of fermented spent coffee grounds as a substrate supplement for rearing black soldier fly larvae, *Hermetia illucens* (L), (Diptera: Stratiomyidae)

Kanyanat Khaekratoke, Parichart Laksanawimol, Anchana Thancharoen

[pubmed.ncbi.nlm.nih.gov](https://pubmed.ncbi.nlm.nih.gov)

[hermetia illucens](#)

26/10/2022

### Dynamic modelling of feed assimilation, growth, lipid accumulation, and CO<sub>2</sub> production in black soldier fly larvae

Niels Thomas Eriksen

[pubmed.ncbi.nlm.nih.gov](https://pubmed.ncbi.nlm.nih.gov)

[hermetia illucens](#)

09/11/2022

### Food industry waste - An opportunity for black soldier fly larvae protein production in Tanzania.

A Isibika, P Simha, B Vinnerås, C Zurbrügg, O Kibazohi, C Lalander

[www.ncbi.nlm.nih.gov](https://www.ncbi.nlm.nih.gov)

[hermetia illucens](#)

07/11/2022

### Comparative protein quality in black soldier fly larvae meal vs. soybean meal and fish meal using classical protein efficiency ratio (PER) chick growth assay model

Veronica Cheng, Anna Kate Shoveller, Lee-Anne Huber, Elijah G Kiarie

[pubmed.ncbi.nlm.nih.gov](https://pubmed.ncbi.nlm.nih.gov)

[hermetia illucens](#)

21/10/2022

### Effects of chicken waste meal and vegetable substrate fed black soldier fly prepupae meal on rainbow trout (*Oncorhynchus mykiss*)

I. Yandi, R.C. Ozturk, Y. Terzi Related, S. Kayis Related, I. Altinok

[dx.doi.org](https://dx.doi.org)

[hermetia illucens](#)

20/10/2022

## **Dietary Tenebrio molitor Larvae Meal Inclusion Exerts Tissue-Specific Effects on Cellular, Metabolic, and Antioxidant Status in European Sea Bass (*Dicentrarchus labrax*) and Gilthead Seabream ...**

Thomas Bousdras, Konstantinos Feidantsis, Nikolas Panteli, Stavros Chatzifotis, Giovanni Piccolo, Laura Gasco, Francesco Gai, Sand Efthimia Antonopoulou

[www.hindawi.com](http://www.hindawi.com)

[hermetia illucens](#)

13/10/2022

## **Residues from black soldier fly (*Hermetia illucens*) larvae rearing influence the plant-associated soil microbiome in the short term**

Adrian Fuhrmann, Benjamin Wilde, Rafaela Feola Conz, Speciose Kantengwa, Matieyedou Konlambigue, Barthazar Masengesho, Kokou Kintche, Kinfe Kassa, William Musazura, Leonhard Späth, Moritz Gold, Alexander Mathys, Johan Six, Martin ...

[pubmed.ncbi.nlm.nih.gov](http://pubmed.ncbi.nlm.nih.gov)

[hermetia illucens](#)

07/10/2022

## **Replacement of soybean oil by *Hermetia illucens* fat in turkey nutrition: effect on performance, digestibility, microbial community, immune and physiological status and final product quality**

J. Sypniewski, B. Kierończyk, A. Benzertiha, Z. Mikołajczak, E. Pruszyńska-Oszmałek, P. Kołodziejcki, M. Sassek, M. Rawski, W. Czekala & D. Józefiak show less

[dx.doi.org](http://dx.doi.org)

[hermetia illucens](#)

07/10/2022

## **Tenebrio Molitor Meal in Rainbow Trout (*Oncorhynchus Mykiss*) Diets: Effects on Animal Performance, Nutrient Digestibility and Chemical Composition of Fillets**

Marco Belforti, Francesco Gai, Carola Lussiana, Manuela Renna, Vanda Malfatto, Luca Rotolo, Michele De Marco, Sihem Dabbou, Achille Schiavone, Ivo Zoccarato & Laura Gasco

[dx.doi.org](http://dx.doi.org)

[hermetia illucens](#)

14/10/2022

## **Influence of Different Diets on Growth and Nutritional Composition of Yellow Mealworm**

Anna Bordiean, Michał Krzyżaniak, Marek Aljewicz, Mariusz Jerzy Stolarski

[pubmed.ncbi.nlm.nih.gov](http://pubmed.ncbi.nlm.nih.gov)

[tenebrio molitor](#)

13/10/2022

## **Toxics, Vol. 10, Pages 608: Effects of Polystyrene Diet on the Growth and Development of *Tenebrio molitor***

IXiaosu Wang, Tianle Tang

[www.mdpi.com](http://www.mdpi.com)

[tenebrio molitor](#)

07/10/2022

## **Impact of substrate contamination with mycotoxins, heavy metals and pesticides on the growth performance and composition of black soldier fly larvae (*Hermetia illucens*) for use in the feed ...**

Benedict Purschke, Rafaela Scheibelberger, Sonja Axmann, Andreas Adler & Henry Jäger

[dx.doi.org](http://dx.doi.org)

[hermetia illucens](#)

07/10/2022

## **Effects of different levels of *Hermetia illucens* larvae meal on performance, egg quality, yolk fatty acid composition and oxidative status of laying hens**

Xu Liua Hunan, Xin Liu, Yaling Yao, Xiangyong Qu, Jifa Chen, Kailai Xie, Xingju Wang, Yi Qi, Bing Xiao & Changqing

[dx.doi.org](http://dx.doi.org)

[hermetia illucens](#)

07/10/2022

## In Vitro Crude Protein Digestibility of Tenebrio Molitor and Hermetia Illucens Insect Meals and its Correlation with Chemical Composition Traits

Stefania Marono, Giovanni Piccolo, Rosa Loponte, Carmelo Di Meo, Youssef A. Attia, Antonino Nizza & Fulvia Bovera

[dx.doi.org](https://dx.doi.org/)

[hermetia illucens](#)

04/10/2022

## Foods, Vol. 11, Pages 3075: Influence of Different Diets on Growth and Nutritional Composition of Yellow Mealworm

Anna Bordiean, Michał Krzyżaniak, Marek Aljewicz and Mariusz Jerzy Stolarski

[www.mdpi.com](https://www.mdpi.com)

[tenebrio molitor](#)

30/09/2022

## Growth performance of the black soldier fly, Hermetia illucens larvae (Linnaeus, 1758) fed on honeybee propolis-treated wheat bran

N. Bakaaki, M. Aanyu Related, H. Onen Related, D. Opio Related, F. Sengendo Related, M. Chemurot Related

[dx.doi.org](https://dx.doi.org/)

[hermetia illucens](#)

06/10/2022

## Gut microbiota shift in layer pullets fed on black soldier fly larvae-based feeds towards enhancing...

Evalyne W. Ndotono, Fathiya M. Khamis, Joel L. Bargul & Chrysantus M. Tanga

[www.nature.com](https://www.nature.com)

[hermetia illucens](#)

30/09/2022

## Towards circular agriculture – exploring insect waste streams as a crop and soil health promoter

K.L. Torgerson R, J.V. Meijering, J. Sok Related, M. Dicke Related, A.G.J.M. Oude Lansink

[dx.doi.org](https://dx.doi.org/)

## Product - media

Sources : mainstream media, regulatory sources, institutionnal, company,...

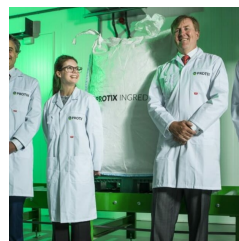


23/11/2022

### What is the future of insect protein in the pet food industry?

Learn about all things insect protein in the pet food industry with Prombyx's Fabiola Neitzel on this 22nd episode of the Trending: Pet Food ...

[www.petfoodindustry.com](https://www.petfoodindustry.com)



18/11/2022

### LCA points to environmental benefits of insect meal

The result of a new life cycle assessment (LCA) suggest that insect-based feed ingredients have a considerably lower environmental footprint ...

[thefishsite.com](https://thefishsite.com)

[hermetia illucens](#)





24/10/2022

## Insect protein in poultry diets gaining momentum in EU

Inclusion of insect protein in poultry feed has been permitted in the European Union since 2021, but the protein becoming mainstream remains ...

[www.wattagnet.com](http://www.wattagnet.com)



12/10/2022

## Insect protein – A sustainable alternative

Protein is an essential building block of animal feed. Yet many of the common sources of protein cause global warming, water shortages, deforestation ...

[www.feedandadditive.com](http://www.feedandadditive.com)

[hermetia illucens](#)



12/10/2022

## Unlocking the real value of insect meal

Instead of taking simplistic view which insists on the use of insect meal as a fish meal replacement and focusing on the similarity between the ...

[www.feedandadditive.com](http://www.feedandadditive.com)

[hermetia illucens](#)



03/10/2022

## Why Africa Should Invest in Insect-Composted Organic Fertilizer

...like Ghana as the agricultural sector is currently suffering from a deficit of 350,000 metric tons of fertilizer due to ... content of the ...

[news.scienceafrica.co.ke](http://news.scienceafrica.co.ke)

## Product - articles

Sources : HAL, Pubmed, BASE, MDPI, F100Research, Journal of Insects as Food and Feed, ...

23/11/2022

## Integrative Metabolomics for Assessing the Effect of Insect (*Hermetia illucens*) Protein Extract on Rainbow Trout Metabolism

Simon Roques, Catherine Deborde , Laurence Guimas, Yann Marchand, Nadege Richard, Daniel Jacob, Sandrine Skiba-Cassy , Annick Moing , Benoit Fauconneau

[hal.inrae.fr](http://hal.inrae.fr)

[hermetia illucens](#)

13/10/2022

## The interplay of larval age and particle size regulates micro-polystyrene biodegradation and development of *Tenebrio molitor* L

Zheng Zhong , Xi Zhou , Yichun Xie , L M Chu

[pubmed.ncbi.nlm.nih.gov](http://pubmed.ncbi.nlm.nih.gov)

[tenebrio molitor](#)

10/10/2022

## Agronomy, Vol. 12, Pages 2459: The Effects of Insect Frass Fertilizer and Biochar on the Shoot Growth of Chicory and Plantain, Two Forage Herbs Commonly Used in Multispecies Swards

Simon Hodge and John Conway

[www.mdpi.com](http://www.mdpi.com)

07/10/2022

## Can the inclusion of black soldier fly (*Hermetia illucens*) in diet affect the flesh quality/nutritional traits of rainbow trout (*Oncorhynchus mykiss*) after freezing and cooking?

Giulia Secci , Simone Mancini , Valeria Iaconisi, Laura Gasco , Ana Basto & Giuliana Parisi

[dx.doi.org](http://dx.doi.org)

[hermetia illucens](#)



24/11/2022

## **Insect Feed Market 2023-2028 Growth Analysis with CAGR of 11.7%, Share, and consumption by Regional data, ...**

PUNE, Nov. 24, 2022 (GLOBE NEWSWIRE) -- "Insect Feed Market" research report focus on overall information that can help to take decisions on ...

[ca.sports.yahoo.com](http://ca.sports.yahoo.com)



17/11/2022

## **Press Release - IPIFF highlights the strategic importance of the insect-producing sector to support the realisation ...**

The conference 'Shaping European Food Systems: How insect farming is contributing to the 'Farm to Fork' strategy targets' hosted by the International ...

[ipiff.org](http://ipiff.org)

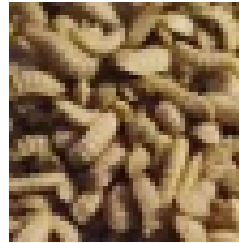


11/11/2022

## **Insects as an alternative protein source - All About Feed - All About Feed**

Insects as an alternative protein source - All About Feed All About Feed

[www.allaboutfeed.net](http://www.allaboutfeed.net)



03/11/2022

## **Watch Now: Singapore-based company is using insects and food waste to help feed people - KoamNewsNow.com**

Watch Now: Singapore-based company is using insects and food waste to help feed people KoamNewsNow.com

[www.koamnewsnow.com](http://www.koamnewsnow.com)



03/11/2022

## **Singapore-based company is using insects and food waste to help feed people - Billings Gazette**

Singapore-based company is using insects and food waste to help feed people Billings Gazette

[billingsgazette.com](http://billingsgazette.com)

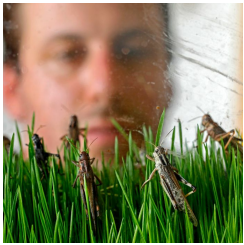


03/11/2022

## **"Farmed insects fit in the durable food system" Edible insects can use the organic residual streams from a...**

Edible insects can use the organic residual streams from agriculture and the food sector and make new food or feed from them. In this way, ...

[www.verticalfarmdaily.com](http://www.verticalfarmdaily.com)



02/11/2022

### **Insect Protein Offering 'Green' Livestock Feed Alternative as Market Demand Soars**

Making a meal out of bugs is at the top of many people's "yuck" factor—as edible protein supplements made from crawling locusts, buzzing flies, ...

[www.theepochtimes.com](http://www.theepochtimes.com)

[hermetia illucens](#)



31/10/2022

### **A look inside the Asia insect-for-feed industry - All About Feed - All About Feed**

A look inside the Asia insect-for-feed industry - All About Feed All About Feed

[www.allaboutfeed.net](http://www.allaboutfeed.net)



31/10/2022

### **A look inside the Asia insect-for-feed industry**

How the quest is going to develop the insects-for-feed and food supply chain within Asia and beyond. Now 7 years old, the Asian Food and Feed ...

[www.allaboutfeed.net](http://www.allaboutfeed.net)



29/10/2022

### **Europe Region to Attract Manufacturers' Attention in the Black Soldier Fly Market through 2032**

The latest industry analysis on the Black Soldier Fly Market provides sales prospects in over 20 countries across key categories of products, ...

[xherald.com](http://xherald.com)

[hermetia illucens](#)



29/10/2022

### **Insect Feed Market Growth, Future Demand, Key Players & Forecast 2031**

According to a new report published by Allied Market Research, titled, "Insect Feed Market," The Insect Feed Market Size was valued at \$261.50 ...

[www.openpr.com](http://www.openpr.com)



19/10/2022

### **Insects, algae oil and plants: 3 ways Cargill is helping feed animals more sustainably than ever | Cargill**

It's an example of the intersections between sustainability and innovation, animal health and farmer livelihoods — and all of it flowing ...

[www.cargill.com](http://www.cargill.com)

17/10/2022

### **Expansion Of The Aquaculture Industry Boosting The Global Black Soldier Fly Market Growth**

CITY, Country, 2022-Oct-17 — /EPR Network/ — Increasing demand for farmed fish has led to a rise in fish oil and fish meal prices. Insect feed serves as a [read full press release...]

[express-press-release.net](http://express-press-release.net)

[hermetia illucens](#)



12/10/2022

### **Creating circular economy for animal feed with insects**

BSF is a proven high-nutrition feed source for agricultural applications. There are challenges the industry faces in getting this excellent product ...

[www.feedandadditive.com](http://www.feedandadditive.com)

[hermetia illucens](#)



02/10/2022

## Why Insects Could be Ideal for the Future of Animal Feed and Food

... system of agriculture and food production adds to immense ... concerns relating to sustainability and food security. Now, the key ...

[food.einnews.com](http://food.einnews.com)



29/09/2022

## Developing insect production chain for animal feed, French platform Invers picks up €15 million

Betting big on the soaring need for food independence and demand for high-quality insect protein, French startup Invers has raised €15 million ...

[tech.eu](http://tech.eu)

## Industrials applications - articles

Sources : HAL, Pubmed, BASE, MDPI, F100Research, Journal of Insects as Food and Feed, ...

21/11/2022

### Insects, Vol. 13, Pages 1073: Combined Jasmonic Acid and Ethylene Treatment Induces Resistance Effect in Faba Bean Plants Against *Frankliniella occidentalis* (Pergande) (Thysanoptera: Thripidae)

Yu-Lian Jia ,Tao Zhang , Jun-Rui Zhi , Lu Tuo , Wen-Bo Yue, Ding-Yin Li and Li Liu

[www.mdpi.com](http://www.mdpi.com)

16/11/2022

### No neonates without adults: A review of adult black soldier fly biology, *Hermetia illucens* (Diptera: Stratiomyidae): A review of adult black soldier fly biology, *Hermetia illucens* (Diptera: S...

Noah B Lemke , Amy Jean Dickerson , Jeffery K Tomberlin

[pubmed.ncbi.nlm.nih.gov](http://pubmed.ncbi.nlm.nih.gov)

[hermetia illucens](#)

13/11/2022

### Performance evaluation of black soldier fly larvae fed on human faeces, food waste and their mixture

Debasree Purkayastha, Sudipta Sarkar

[pubmed.ncbi.nlm.nih.gov](http://pubmed.ncbi.nlm.nih.gov)

[hermetia illucens](#)

11/11/2022

### Monitoring Compositional Changes in Black Soldier Fly Larvae (BSFL) Sourced from Different Waste Stream Diets Using Attenuated Total Reflectance Mid Infrared Spectroscopy and Chemometrics

Louwrens C Hoffman 1 2 3, Shuxin Zhang 1 4, Shanmugam Alagappan, Volant Wills, Olympia Yarger, Daniel Cozzolino

[pubmed.ncbi.nlm.nih.gov](http://pubmed.ncbi.nlm.nih.gov)

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27/10/2022

### Sustainability, Vol. 14, Pages 13993: Black Soldier Fly Larvae (*Hermetia illucens*) for Biodiesel and/or Animal Feed as a Solution for Waste-Food-Energy Nexus: Bibliometric Analysis

Dave Mangindaan, Emil Robert Kaburuan and Bayu Meindrawan

[www.mdpi.com](http://www.mdpi.com)

[hermetia illucens](#)

25/10/2022

### [hal-03828642] Edible Insects' Transformation for Feed and Food Uses: An Overview of Current Insights and Future Developments in the Field

Rachelle El Hajj Houcine Mhemdi Colette Besombes, Karim Allaf Victor Lefrançois Eugène Vorobiev

[hal-univ-rochelle.archives-ouvertes.fr](http://hal-univ-rochelle.archives-ouvertes.fr)

07/10/2022

### **Agriculture, Vol. 12, Pages 1628: Tropical Plant Phytonutrient Improves the Use of Insect Protein for Ruminant Feed**

Benjamad Khonkhaeng, Metha Wanapat, Sawitree Wongtangtintharn, Kampanat Phesatcha , Chanadol Supamong , Chanon Suntara, Chalermpon Yuangklang , Kraisit Vasupen , Jiravan Khotsakdee , Pin Chanjula , Pongsatorn Gunun , Nirawan Gunun and Anusorn ...

[www.mdpi.com](http://www.mdpi.com)

30/09/2022

### **Black soldier fly full-fat meal in Atlantic salmon nutrition – Part A: Effects on growth performance, feed utilization, selected nutriphysiological traits and production sustainability in fries**

Zuzanna Mikołajczak, Jan Mazurkiewicz, Mateusz Rawski, Bartosz Kierończyk, Agata Józefiak, Sylwester Świątkiewicz and Damian Józefiak

[sciendo.com](http://sciendo.com)

[hermetia illucens](#)



Research team on entomoconversion: [souhil.harchaoui@inrae.fr](mailto:souhil.harchaoui@inrae.fr), [erwan.engel@inrae.fr](mailto:erwan.engel@inrae.fr), [patrick.borel@univ-amu.fr](mailto:patrick.borel@univ-amu.fr) Pôle ASTRA-DipSo : [bruno.pierrel@inrae.fr](mailto:bruno.pierrel@inrae.fr), [monique.delabuis@inrae.fr](mailto:monique.delabuis@inrae.fr), [camille.brard@inrae.fr](mailto:camille.brard@inrae.fr), [sybille.de-mareschal@inrae.fr](mailto:sybille.de-mareschal@inrae.fr)