

CORE organic



# POULTRYNSECT

**THE USE OF LIVE INSECT LARVAE  
TO IMPROVE SUSTAINABILITY  
AND ANIMAL WELFARE OF  
ORGANIC CHICKENS  
PRODUCTION**

**(2021-2024)**

## **Final Newsletter**



# GREETINGS FROM THE PROJECT COORDINATOR (DR. FRANCESCO GAI)



**Dear Readers and friends of POULTRYNSECT,**  
the final newsletter is ahead of you.

This last issue of the POULTRYNSECT newsletter focuses on the **dissemination activities** of the last six months of the 2023 and other activities planned for the first semester of the 2024, even if the project officially ended last December 2023.

Results concerning the second poultry trial of the project, related to poultry welfare, environmental impact, meat quality and growth performances have been disseminated in several international **congresses** held in **Czech Republic, France, Italy and Turkey.**

A special focus of this newsletter is also dedicated to the **final project symposium**, hosted by **Consiglio Nazionale delle Ricerche** in their headquarter in **Rome, Italy**, on last **October 27th.**

The topics of the event were carefully chosen to give a **360° perspective about insect use in poultry farming**, showing the **multidisciplinary** approach of the project itself. Topics were presented by the WP leaders and colleagues involved, giving the opportunity to provide to the audience with the latest results and pending activities. The event has been attended by around 50 people spacing from **students to academic staff and stakeholders** such as poultry farmers and poultry meat processing company.

The newsletter ends with the **stakeholder Poultrynsect interview**, in this issue we had the opportunity to interview the **Secretary General of IPIFF (International Platform of Insect for Food and Feed)**, an organization that represents the major part of the insect producers in the European Union. Among the different questions posed, we also asked which is the IPIFF position regarding the EU **organic certification standards for insect production activities**, a topic that surely interest our readers!

I profit of this last newsletter to thank all project members who believed and contributed to the success of this project, at the same **we want to invite all the readers to continue to follow us by** checking the project updates on our website: <https://poultrynsect.eu/>

See you all on the next project!

**Francesco Gai**, coordinator of POULTRYNSECT

# POULTRYNSECT AT ESPW CONGRESS 2023



**Dr. Valentina Bongiorno** (UNITO PhD student) took part at the **XI European Symposium on Poultry Welfare**, from 26 to 29 June 2023, in Prague.

She shared some results of her PhD trial with the audience with an engaging presentation titled **“What a wonderful worm: live black soldier fly larvae effects on medium-growing chickens’ welfare”**.

The program of the event was indeed focused on poultry welfare, with talks, short communications and poster presentations, providing time for fruitful interactions between members of industry and academia.

Congratulations Valentina!





# POULTRYNSECT AT ICOMST CONGRESS 2023



Additional preliminary results regarding our second in-vivo trial were presented during the **69° International Congress of Meat Science and Technology – ICOMST 2023, from August 20 – 25 in Padua (Italy)**, by a Poultrynsect team member, Valeria Zambotto (Unito-CNR ISPA), with a poster titled: **“Sensory evaluation of breast meat from Bianca di Saluzzo chicken supplemented with live and dried black soldier fly larvae”** .

Before taking part to the congress, Valeria was also accepted into the (18-19/08/2023 – Padova). It was really a great formative opportunity, **Pre-Congress Graduate Course** with an outstanding team of scientists that gave several lectures to the participants.





# POULTRYNSECT AT EAAP ANNUAL MEETING 2023



**Dr. Dusan Ristic, from German Institute of Food Technologies (DIL) team, presented some results of Poultrynssect first trial during the 74th Annual Meeting of EAAP – European Federation of Animal Science in Lyon, France – August 26th / September 1st, 2023.**

**Congrats Dusan!**





# POULTRYNSECT AT THE 4TH INTERNATIONAL ANIMAL NUTRITION CONGRESS

29th February – 3rd March 2024



The **INTERNATIONAL ANIMAL NUTRITION CONGRESS** aimed to enhance and elevate the scientific caliber by facilitating the integration of advanced knowledge and technology through university-industry collaboration.

This collaborative effort seeks to generate added value that can benefit both the economy and the academia around topics such as: **raw materials, feed additives, nutrition** (for ruminant, poultry, and other farm and pet animals), **feed technology, and cutting-edge advancements like digital nutrition.**

In this occasion our **Unito PhD student, Dr. Edoardo Fiorilla**, presented 2<sup>nd</sup> trial results titled: **“Beyond Nutrition: Enhancing Poultry Well-being through Insect-Enriched Diets”**.

Bravo Edoardo!





# POULTRYNSECT AT XVI EUROPEAN POULTRY CONFERENCE



## XVI European Poultry Conference

The conference season will continue till summer 2024, specifically June, with the XVI EUROPEAN POULTRY CONFERENCE (24th – 28th June 2024) –Valencia, Spain.

Our Unito PhD students, **Valentina Bongiorno** and **Edoardo Fiorilla**, will present several works concerning autochthonous poultry breeds:

- **“Slow in growth, quick in reaction: chicken welfare enhancement towards live larvae provision” (Bongiorno et al.)**
- **“Assessing the environmental impact of poultry feed in meat type autochthonous chicken farming» (Fiorilla et al.)**
- **«Whole dehydrated and live black soldier fly larvae in autochthonous chickenbreeds, effects on slaughtering performance and meat quality» (Fiorilla et al.)**





## POULTRYNSECT EVENT: FINAL SYMPOSIUM!



On **October 27<sup>th</sup> 2023** the final symposium of the project took place. The event was hosted by **Consiglio Nazionale delle Ricerche** in their headquarter in Rome, Italy. For this occasion the beautiful Marconi Hall was chosen as the official venue. The hall is renowned for its walls decorated by frescoes representing some of the most important Italian scientists known: Archimede, Galileo Galilei, Leonardo Da Vinci and Alessandro Volta, just to mention some.

The topics of the event were carefully chosen to give a 360° perspective about insect use in **poultry farming**, showing the multidisciplinary approach of the project itself:

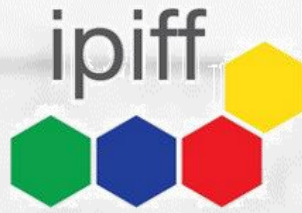
- **Insect rearing:** the Black Soldier Fly potential as bioconverter
- **Poultry nutrition** and the use of the insects as feed in organic farming
- **Poultry welfare:** the live insect larvae tool
- **Poultry gut microbiota:** the influence of the live insect larvae administration
- **Poultry meat quality and live insect larvae supplementation impact**
- **Sensorial analysis of the meat from insect-fed chicken**
- **Consumer opinion about the use of live insect larvae in poultry organic farming**
- **Sustainability and environmental impact of poultry farms:** the insect larvae utilisation could be favorable?

Each of these issues, presented by the WP leaders and colleagues involved, gave the opportunity to provide the audience with the latest results and pending activities.

The Poultrynsect final symposium has been also attended by **8 students of the “Animal nutrition and feed safety” postgraduate degree (UNITO)**, giving them the opportunity to have a full immersion on a scientific research project related to insect and poultry science.



# POULTRYNSECT INTERVIEWS:



International Platform of  
Insects for Food and Feed



*Christophe Derrien*  
IPIFF Secretary General

Good morning, Mr. Derrien and thank you again for agreeing to participate, on behalf of IPIFF and its members, in our interview and thus giving us the opportunity to learn more about the IPIFF point of view about the use of insects as feed and food in Europe.

We, and all our readers, are very curious to know more about your business and IPIFF opinion regarding the current and future challenges for the use of insects in the European feed sector.

Before proceeding with the questions, we would like to know something more about your scientific/professional background and your role in the IPIFF organization.

Native from Bretagne, Western France, I have a legal background, with a specialization in EU and agri-food legislation. After performing several professional missions at the **French Ministry of Agriculture** and at the **European Commission** (Directorate-General for Agriculture and Rural Development), I worked for the EU umbrella organization from **European farmers and agri-cooperatives** for four years: my main responsibilities included **EU food and feed safety subjects**. Thereafter, I worked as a consultant on EU projects related to food sustainability. I started to work for the International Platform of Insects for Food & Feed (IPIFF) in January 2015 and I was in charge of the Secretary General of the association since August 2016.

**How and when was IPIFF born and what are the issues of fundamental importance addressed by your organization?**

Ten years ago, a group of people from various backgrounds met in Rome at end of January **2012** for a meeting hosted by the UN Food and Agricultural Organization (FAO). Driven by the **global need of sustainable food and feed alternatives**, this event signified the international 'birth' of insect farming as a new sub-sector in modern agriculture.

In 2013, FAO published their report **Edible insects – Future prospects for food and feed security which was downloaded >1,000,000 times within the first 24 hours**. At that time, several actors – pioneering companies in insect production - created an **international platform called International Platform of Insects for Food and Feed, better known as 'IPIFF'**.

IPIFF was formally established in **April 2015**. The association has grown from 6 founding members to **70 members**.

Our core activities center around **advocating for the establishment of appropriate regulatory frameworks for insect producing actors in Europe**. Being the voice of the European insect sector towards the European institutions, we aim to consolidate dialogue with EU public authorities and other EU third parties (e.g. industry associations, NGOs active in the agri-food sector) while supporting operators in the implementation of the applicable legislation. The work of our organization was of great importance in securing a dialogue and progress with European legislation as well as uniting the regional insect stakeholders. **During the last seven years, IPIFF enabled a wider use of insect for food, feed and frass in the European Union**. These efforts materialized through the authorisation for using insect proteins in aquaculture in 2017. This authorization was extended to pig and poultry animals in 2021. The first insect food products were authorized as '**novel food**' back in 2021 too. Six products were authorized since then, including four different species. During the same year, the EU legislator defined EU baseline standards for insect frass, thereby allowing their use as organic fertilizer within the European Union. Including more feeding substrates to be legally applicable for insect farming is now a major priority of IPIFF.



Recently the utilisation of insect as feed for poultry and pigs has been approved by the EU following the previous authorization for aquaculture species. What is IPIFF point of view about this important step regarding the use of insects as feed? Do you perceive a real interest by the poultry feed producers in the utilisation of these alternative protein sources? Which are the main limitations concerning their massive utilisation?

Insects can provide a **locally-produced and high-quality source of nutrients for poultry farmers**. Moreover, added in animal feed, such novel ingredients have also shown **positive results** in terms of growth rates, development as well as animal health and welfare. Moreover, their **amino acid profile** corresponds to the dietary needs of poultry animals, with adequate levels of amino acids which are seen as limiting factors (lysine, threonine, methionine, and tryptophan).

➔ **For further background on this subject, see the IPIFF factsheet [‘The nutritional benefits of insects in animal feed’ \(February 2020\)](#).**

Trials indicate that insects containing diets are preferred by poultry, most likely because of their taste and nutritive value. Moreover, recent evidence confirms that the incorporation of insects in poultry diets would also allow them to **express their natural behaviour - reducing aggressive reactions**, such as feather pecking (Star et al., 2020).

The EU authorisation in poultry and pig feed therefore offered major new opportunities for poultry farmers and insect feed operators - starting with the incorporation of such ingredients into the nutrition of such animals and strengthening partnerships between insect and animal farms.

Such trends should also be stimulated by **consumer awareness** (e.g. growing consumption of lower footprint animal derived products), the **expected growth of certain niche markets** (e.g. free-range poultry, organic production value chains, etc.) in the long run.

➔ **For further information about expected growth of the poultry market for insect producers, you may refer to the following document: [‘Overview of the European insect feed market’ \(IPIFF factsheet, November 2023\)](#).**

Yet, there are today **limitations to their massive utilisation, due to available volumes and price difference with ‘more traditional’ protein sources**. Scaling up of production remains undoubtedly the main challenge of the insect sector at the moment. Significant efforts deployed over the recent years shall be continued in order to achieve the necessary size. Economy of scale shall notably be fuelled through substantial investments in breeding and processing technologies thereby reducing production costs.

In our view, efforts to document and communicate on insect production credentials (i.e. nutritional and sustainability benefits) should be stepped up as well. **Such efforts would provide an incentive for customers** (e.g. poultry farmers and feed manufacturers) **and European consumers to prioritise the use of such complementary food or feed sources**.

➔ **For further details on the IPIFF position on this subject, see document [‘IPIFF perspectives on the evolution of the European insect sector towards 2030: current regulatory status, existing opportunities and prospects for development’ \(November 2023\)](#).**

Insects as feed: Regulation (EU) No 609/2013 on the Catalogue of feed materials and in accordance with Regulation (EC) No 1831/2003 and Regulation (EC) No 1069/2009	Ruminant animals	Aquaculture	Poultry	Pigs	Pets	Fur and other animals (e.g. zoos)	Technical uses (e.g. cosmetics industry, bio-based fuels, production of other bio-based materials such as bioplastics)
Insect protein (under entry 5.6.1. 'Processed animal protein')	✗	✓ **	✓ **	✓ **	✓	✓	✓
Insect fat (under entry 5.2.4 'animal fat')	✓	✓	✓	✓	✓	✓	✓
Whole insects (under entry 5.16.2. 'terrestrial invertebrates, dead')	✗	✗	✗	✗	✗	✓ *	✓
Whole insects (treated - e.g. freeze-dried) (under entry 5.16.2. 'terrestrial invertebrates, dead')	✗	✗	✗	✗	✓ *	✓ *	✓
Live insects (under entry 5.16.3. 'terrestrial invertebrates, live')	✗	✓ *	✓ *	✓ *	✓ *	✓ *	✓
Hydrolysed insect proteins (under entry 5.6.1. 'Hydrolysed animal protein')	✓	✓	✓	✓	✓	✓	✓

EU Regulatory possibilities for insects' use in animal feed. Source: IPIFF 2022 (p. 25), <https://ipiff.org/wp-content/uploads/2019/12/IPIFF-Guide-on-Good-Hygiene-Practices.pdf>



**Within the POULTRYNSECT project one of the objectives is to use live insect larvae in order to improve animal welfare in medium and slow growing chicken breeds, optimal breeds for organic poultry farming in rural contexts. According to data held by IPIFF, are European consumers favourable for the possible use of live larvae in these types of farming?**

The inclusion of locally-produced feed ingredients, such as insects, in the diet of farmed animals shows a positive attitude on the consumers' end indeed. Presently, surveys indicate high acceptance rate for insect-fed aquaculture, poultry or pigs' animals. According to the PROTEINSECTA study, 73% answered positively.

IPIFF does not however have data focusing specifically on consumers' acceptance of live larvae by poultry animals.

Today, their use remains at the discretion of EU Member States, since live insects do not fall within the scope of the EU animal by-products legislation.

➔ **For further details about the applicable legislation, see [‘IPIFF Guide on Good Hygiene Practices’](#), page 23, November 2022.**

**Another possible form of use of insect larvae in poultry farming is to use dried larvae in order to facilitate feed management operations by farmers and at the same time guarantee microbiological safety criteria for farmed animals. Which is the position of IPIFF and its members on this opportunity of insect use?**

**Both alive and dead Insect larvae** are a natural component of poultry animals, and are particularly suited for certain production segments, including free range and/or organically produced laying hens.

Yet, due to the absence of EU standards regulating their use, whole larvae are prohibited when intended as feed for farmed animals. This prohibition does therefore hinder their possible use by European poultry farmers.

Available scientific literature is showing promising results regarding the beneficial effects of whole dried larvae on animal health, notably thanks to their satisfactory nutritional profile (e.g. amino acid, fatty acids). Several studies have indeed found that the substitution of soy bean meal by whole dried insects does not negatively impact on the overall performance of free-range laying hens (i.e. no negative impact on body weight, feed intake, feed conversion ratio or egg production were reported)

Insect larvae also have a positive impact on animals health (by reinforcing animals' natural defence and gut microbiota) thereby contributing to antibiotic reduction in husbandry.

The use of these products has also proven to bring substantial improvement on the welfare of farmed poultry animals, allowing for natural foraging behaviour and contributing to reduce stress and cannibalism in husbandry, thereby forming a suitable environmental enrichment material

Owing to the above, IPIFF pleads for the establishment of EU tailored rules – under the EU ABP legislation – in order to regulate the use of whole (treated) insect larvae in feed for farmed animals.

To this end, we suggest that their regulatory status is aligned with the rules applying to insect proteins intended for aquaculture, pig and poultry animals. This option would materialise through the establishment of standard/processing methods for the 'drying' and other treatments used to sterilise whole dead insects prior its subsequent feeding to farmed animals (e.g. in annex IV of Regulation (EU) No 142/2011).

➔ **For further details about the benefits associated with dried larvae and the IPIFF position on this subject, you may refer to the [‘IPIFF position paper on the use of insect larvae as feed for food producing animals’](#) (16 September 2021)**

IPIFF intends to prioritise the aforementioned activities, in the next few years.



Last but not least, for some time the establishment of an organic supply chain in the EU for products derived from insects has been hypothesized. Are there any specific technical and legislative prerequisites for a supply chain of this type to be created? What is IPIFF's view on this issue? Are you optimistic that it can be achieved in a relatively short time?

There is a clear and strong need to **increase the production of European organic protein feed** in order to support the conventional livestock sector's conversion to organic. At the same time, organic livestock farming, especially of **monogastrics, faces a huge lack of high-value amino acids**.

Following the EU authorisation for using insect proteins in poultry and pigs as above mentioned, insect derived ingredients allowed for use **in feed for organic chicks and piglets up to 5 %, in accordance with the provisions foreseen in the EU Organic legislation - Regulation (EU) 2018/848**.

Like for conventional farming, limitations to the wider use of insect proteins are mainly due to **limited volumes and price difference with other 'traditional' protein sources at the moment**. This situation leads to hamper the uptake of insect proteins by organic producers, especially in a context of economic inflation which contributed to hinder the growth of the EU organic sector over the recent years.

A **swift development of EU organic certification standards for insect production activities** would also play a strategic role in contributing to the growth of the organic sector towards both market segments, in line with the **'Farm to Fork' Strategy**. We do therefore consider appropriate that EU organic rules which concern 'mainstream' livestock do equally apply to European insect producers.

➔ *For further background on the IPIFF position/recommendations in view of establishing such standards, see IPIFF contribution paper ['the European insect sector's response to the growing demand for EU organic products'](#) (16 July 2021).*

IPIFF initiated discussions with the European Commission services and EU Member States authorities with the view to developing such standards. The 'Expert Group for Technical Advice on Organic Production' (better known as 'EGTOP') is due to a publish report which should outline a series of options with the view to developing such standards by **mid-2024**. This publication could pave the way to the establishment of such framework **by 2025**, as we are expecting discussions between the European Commission and Member States authorities to resume on this matter during the 2<sup>nd</sup> half of the year.



Credits to: IPIFF

**Thanks to Mr. Derrien for such an interesting interview!  
We invite the readers to have more info about the IPIFF  
organization by consulting their official website <https://ipiff.org/>**



# FINAL GREETINGS

**THANK YOU!**

Although the Poultrynsect project is coming to an end, we would like to take this opportunity to thank all project members who believed and contributed to the different steps of this multidisciplinary study!

**The platform and its inspirational materials are still available for anyone passionate about making a difference and shaping a brighter tomorrow. We believe that these materials can be considered valuable tools, promoting a collective drive towards positive transformation.**

Sincerely,

Poultrynsect staff



**POULTRYNSECT**



## PARTNERS

Discover teams involved in the project



POULTRYNSECT



Consiglio Nazionale  
delle Ricerche



UNIVERSITÀ  
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# STAKEHOLDERS



*Controllo e Certificazione*



# CONTACTS

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