

Program of the Conference
Insects for Feed and Food



OLSZTYN, 19-20 JUNE 2024

2ND SCIENTIFIC CONFERENCE

Insects for Feed and Food



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2ND SCIENTIFIC CONFERENCE
**Insects for Feed
 and Food**
 Olsztyn, 19-20 June 2024



UNIVERSITY
 OF WARMIA AND MAZURY
 IN OLSZTYN



FACULTY OF
 VETERINARY MEDICINE



Scientific Committee

- Piotr Bulak MSc, PhD**
 Bohdan Dobrzański Institute of Agrophysics of the Polish Academy of Sciences in Lublin
- Prof. Damian Józefiak**
 Head of the Department of Animal Nutrition, Poznań University of Life Sciences.
 Member of the Board, originator and co-founder of HiProMine.
- Prof. Marcin Kadej**
 Head of the Laboratory of Forensic Biology and Entomology.
 Dean of the Faculty of Biological Sciences at the University of Wrocław
- Marta Koncewicz-Jarząb, DVM**
 Director of the Bureau of Feed, Pharmacy and Disposal, Chief Veterinary Inspectorate
- Assoc. Prof. Agnieszka Kosewska**
 Department of Entomology, Phytopathology and Molecular Diagnostics.
 Faculty of Agriculture and Forestry, UWM in Olsztyn
- Prof. Krzysztof Kwiatek**
 Head of the Department of Feed Hygiene,
 National Veterinary Institute - National Research Institute in Puławy.
- Assoc. Prof. Michał Krzyżaniak**
 Department of Genetics, Plant Breeding and Bioresource Engineering.
 Faculty of Agriculture and Forestry UWM in Olsztyn.
- Prof. Bogdan Lewczuk**
 Head of the Department of Histology and Embryology.
 Dean of the Faculty of Veterinary Medicine UWM in Olsztyn
- Prof. Daria Murawska**
 Head of the Department of General Commodity Science and Experimentation,
 Faculty of Animal Bioengineering, UWM in Olsztyn
- Assoc. Prof. Piotr Zapotoczny**
 Department of Systems Engineering, Faculty of Technical Sciences, UWM in Olsztyn

Organizing Committee

- Department of Veterinary Prevention and Feed Hygiene,
 Faculty of Veterinary Medicine,
 University of Warmia and Mazury in Olsztyn
- Łukasz Zielonka**
 Chairman of the Organizing Committee
- Mirosław Baranowski**
- Marzena Barasińska**
- Michał Dąbrowski**
- Magdalena Gajęcka**
- Remigiusz Gałęcki**
- Małgorzata Gugolek**
- Ewa Jakimiuk**
- Kazimierz Obremski**
- Tadeusz Bakuła**
 Polish Association of Insect Breeders and Producers
- Robert Stryński**
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 Faculty of Biology and Biotechnology, UWM in Olsztyn
- Paweł Górzyński**
 Co-owner of TENEBRIA Sp. z o.o.,
 Dworcowa Street 36, 14-260 Lubawa



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Speakers



Prof. Marcin Kadej
University of Wrocław
Department of Invertebrate Biology, Evolution and Conservation,
Dean of the Faculty of Biological Sciences, University of Wrocław

Assoc. Prof. Karol Barragán-Fonseca, VM, PhD
Associate Professor (Tenure Track) at the Universidad Nacional de Colombia, Director of Terrestrial Arthropod Research Center.
Departamento De Producción Animal, Facultad De Medicina Veterinaria Zootecnia, La Universidad Nacional de Colombia



Remigiusz Gałęcki, DVM, PhD
Assistant Professor, Department of Veterinary Prevention and Feed Hygiene, Faculty of Veterinary Medicine, University of Warmia and Mazury in Olsztyn

Marian Peters, BSc, MBA
CEO of New Generation Nutrition B.V. (NGN), Wageningen, Holand



Assoc. Prof. Tadeusz Bakula
University of Warmia and Mazury in Olsztyn
Polish Association of Insect Breeders and Producers

Francis Maugèr
Political Adviser for Animal Feed - Insect Farming
Political Adviser in charge of insect farming issues at Eurogroup for Animals, a pan-European organization dedicated to animal protection



Nils TH. Grabowski, DVM, PhD
Head of Department at the Institute for Food Quality and Food Safety, University of Veterinary Medicine in Hannover, Germany

Wojciech Zahaczewski, MSc, PhD
Co-founder and Sales Director in OVAD Co. Ltd.





ORGANIZER'S OFFICE

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University of Warmia and Mazury in Olsztyn

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**Conference Center at the University of Warmia and Mazury in Olsztyn
ul. Dybowskiego 11**

Conference Room

19 June 2024, Wednesday

9⁰⁰ – 10⁰⁰ Registration of Conference participants

10⁰⁰ – 10¹⁵ **Opening of the Conference**

10¹⁵ - 12⁰⁰ Plenary session (1)

Lecturer:

Assoc. Prof. Agnieszka Kosewska

Department of Entomology, Phytopathology and Molecular Diagnostics. Faculty of Agriculture and Forestry, UWM in Olsztyn

Remigiusz Gałęcki, DVM, PhD

Assistant Professor, Department of Veterinary Prevention and Feed Hygiene, Faculty of Veterinary Medicine, University of Warmia and Mazury in Olsztyn

Speaker:

“Edible Insects from an Entomological Perspective”

Prof. Dr. Habil. Marcin Kadej

Department of Invertebrate Biology, Evolution and Conservation, Dean of the Faculty of Biological Sciences, University of Wrocław

“Insects as Food and Feed in Latin America: Advances and Perspectives”

Prof. Dr. Karol Barragán-Fonseca

Assistant Professor (Tenure Track) at the Universidad Nacional de Colombia, Director of Terrestrial Arthropod Research Center. Departamento De Producción Animal, Facultad De Medicina Veterinaria Zootecnia, La Universidad Nacional de Colombia

12⁰⁰ – 12³⁰ coffee break

12³⁰ - 14³⁰ Plenary session (2)

Lecturer:

Prof. Dr habil. Magdalena Gajęcka

Department of Veterinary Prevention and Feed Hygiene, Faculty of Veterinary Medicine, University of Warmia and Mazury in Olsztyn

Piotr Bulak Ph.D.

Bohdan Dobrzański Institute of Agrophysics of the Polish Academy of Sciences in Lublin.

Lectures***"The Ento-Revolution: Edible Insects and the Future of Development"*****Remigiusz Gałęcki, DVM, PhD**

Assistant Professor, Department of Veterinary Prevention and Feed Hygiene, Faculty of Veterinary Medicine, University of Warmia and Mazury in Olsztyn

"Lessons in Scaling the Insect Sector on a National Level, Benefiting from Public-Private Partnerships"**Marian Peters**

CEO of New Generation Nutrition B.V. (NGN), Wageningen, Holand

14³⁰ – 16⁰⁰ lunch break**Lunch will be served in the cafeteria at the Conference Center, ul. Dybowskiego 11**16⁰⁰ -17¹⁵ Thematic session (A)**Conference Room**

Lecturer:

Assoc. Prof. Piotr Zapotoczny

Department of Systems Engineering, Faculty of Technical Sciences, UWM in Olsztyn.

Michał Dąbrowski DVM, PhD

Department of Veterinary Prevention and Feed Hygiene, Faculty of Veterinary Medicine, UWM in Olsztyn

Reports**Selected Aspects Technologies in Insect Farming****Mealworm automatic rearing system - feeding technology.***Paweł Górzyński, Dawid Biedrzycki**Tenebrio sp. z o.o.***Innovative technology for processing mealworm larvae and introducing safe products of insect origin to the market.***Paweł Górzyński**Tenebrio sp. z o.o.***Environmental impact on insect health in farms.***Elżbieta Terech-Majewska¹, Stanisław Majewski²*¹*AQSPIN, Dywity, Tuławki 67*²*Gospodarstwo Rolne, 11-001 Dywity, Tuławki 67***The influence of cobalt fortification of mealworm larvae on their growth and changes in the composition of the intestinal microbiome.***Piotr Bulak¹, Monika Kaczor¹, Marina Kirichenko-Babko¹, Kinga Proc-Pietrycha¹, Anna Pytlak¹, Adam Furtak¹, Dariusz Wiącek¹, Michał Krzyżaniak², Andrzej Bieganowski¹*¹*Instytut Agrofizyki PAN Lublin*²*Uniwersytet Warmińsko-Mazurski w Olsztynie*

Strategy for the production and use of processed insect protein as a feed material in animal nutrition in Poland

Krzysztof Kwiatek¹, Tadeusz Bakula², Remigiusz Gałęcki², Ismena Gałęcka², Zbigniew Osiński¹, Anna Weiner¹, Monika Przeniosło-Siwczyńska¹, Ewelina Patyra¹, Zbigniew Sieradzki¹, Magdalena Goldsztejn¹, Tomasz Grenda¹, Ewelina Kowalczyk¹, Aleksandra Grelik¹

¹Państwowy Instytut Weterynaryjny – Państwowy Instytut Badawczy w Puławach

²Wydział Medycyny Weterynaryjnej, UWM w Olsztynie

17¹⁵ -18⁰⁰ Poster session – Hall at the Conference Center UWM

1) Comparison of *Hermetia illucens* larvae fat with selected plant and animal origin dietary fats in terms of broiler chickens' growth performance, digestibility, and meat quality.

Muhammad Runman Aslam, Piotr Szymkowiak, Bartosz Kierończyk, Damian Józefiak

Department of Animal Nutrition, Poznan University of Life Sciences

2) Could the presence of mycotoxins in the diet of insects reared for fish feed have consequences for aquaculture?

Mikołaj Bittner¹, Kazimierz Obremski², Piotr Gomulka³, Piotr Hliwa³, Jarosław Król⁴, Stefan Dobosz⁴, Paweł Brzuzan¹, Maciej Woźny¹

¹Department of Environmental Biotechnology, Institute of Environmental Engineering and Protection, Faculty of Geoengineering, University of Warmia and Mazury in Olsztyn

²Department of Veterinary Prevention and Feed Hygiene, Faculty of Veterinary Medicine, University of Warmia and Mazury in Olsztyn

³Department of Ichthyology and Aquaculture, Faculty of Animal Bioengineering, University of Warmia and Mazury in Olsztyn

⁴Department of Salmonid Research, National Inland Fisheries Research Institute

3) Różnice morfologiczne u dorosłych osobników muchy *Hermetia illucens* hodowlanych oraz dzikich.

Julia Lisiecka, Monika Dudek, Zuzanna Mikołajczak, Krzysztof Dudek, Damian Józefiak

HiProMine. S.A.

4) Analiza składu surowców owadzych oraz ich wpływu na organizm psa.

Nikola Jovč

Uniwersytet Przyrodniczy we Wrocławiu, Wydział Biologii i Hodowli Zwierząt,

SKN Żywienia Zwierząt

5) Wpływ zastosowania nawozu organicznego z *Hermetia illucens* na stan fizjologiczny *Hordeum vulgare* w warunkach stresu suszy.

Sylwia Kaczmarek, Damian Józefiak

HiProMine S.A.

6) Mineral composition of *Tenebrio molitor* larvae breed on heavy metal-contaminated substrates

Monika Kaczor, Piotr Bulak, Kinga Proc-Pietrycha, Dariusz Wiącek, Andrzej Bieganowski

Instytut Agrofizyki im. Bohdana Dobrzańskiego Polskiej Akademii Nauk ul. Doświadczalna 4, 20-290 Lublin

7) Skład chemiczny i substancje niepożądane w przetworzonym białku owadzi

Jolanta Rubaj¹, Grażyna Bielecja¹, Waldemar Korol¹, Krzysztof Kwiatek², Tadeusz Bakula³, Anna Weiner²

¹Instytut Zootechniki Państwowy Instytut Badawczy, Krajowe Laboratorium Pasz w Lublinie

²Państwowy Instytut Weterynaryjny – Państwowy Instytut Badawczy w Puławach

³Katedra Prewencji Weterynaryjnej i Higieny Pasz, Wydział Medycyny Weterynaryjnej, Uniwersytet Warmińsko Mazurski w Olsztynie

8) Identyfikacja gatunkowa przetworzonych białek owadzi w paszach

Anna Weiner, Krzysztof Kwiatek, Martyna Skowronek, Monika Mazur-Frejowska

Państwowy Instytut Weterynaryjny – Państwowy Instytut Badawczy w Puławach

9) Odtłuszczona mączka z larw *Hermetia illucens* jako częściowy zamiennik dla mączki rybnej – wpływ na zrównoważenie środowiskowe odchowu pstrągów tęczowych (*Oncorhynchus mykiss*)

Zuzanna Mikołajczak¹, Sylwia Kaczmarek¹, Monika Dudek¹, Krzysztof Dudek¹, Damian Józefiak²

¹HiProMine S.A

²HiProMine S.A. / Uniwersytet Przyrodniczy w Poznaniu

10) Wpływ stosowania odchodów mącznika młynarka (*Tenebrio molitor* L.) na plonowanie papryki słodkiej.

Anna Nogalska

Uniwersytet Warmińsko-Mazurski w Olsztynie

11) Comparison of *Hermetia illucens* larval fat with selected plant- and animal-origin dietary fats in terms of the gastrointestinal tract microbiota of broiler chickens

Piotr Szymkowiak, Muhammad Rumman Aslam, Bartosz Kierończyk, Damian Józefiak

Department of Animal Nutrition, Faculty of Veterinary Medicine and Animal Science, Poznań University of Life Sciences

19³⁰ – Gala Dinner – Integration Meeting – Omega Hotel in Olsztyn

20 June 2024, Thursday

Conference Center at the UWM Conference Room

10⁰⁰ – 12⁰⁰ Plenary session (3)

Lecturer:

Prof. dr hab. Daria Murawska

Head of the Department of General Commodity Science and Experimentation, Faculty of Animal Bioengineering, UWM in Olsztyn

Prof. dr hab. Krzysztof Kwiatek

Head of the Department of Feed Hygiene, National Veterinary Institute - National Research Institute in Puławy.

Speaker:

“Insect Farming in European Union Regulations: What Are the Missing Pieces?”

Francis Maugèr

Political Adviser for Animal Feed - Insect Farming

Political Adviser in charge of insect farming issues at Eurogroup for Animals, a pan-European organization dedicated to animal protection

“Teaching and Training Veterinarians in Relation with Productive Insects”

Nils Th. Grabowski, Dr. med. vet.

Head of Department at the Institute for Food Quality and Food Safety, University of Veterinary Medicine in Hannover, Germany

12⁰⁰ -12³⁰ coffee break

12³⁰ -14⁴⁵ Thematic session (B)

Conference Room

Lecturer:

Vet. Marta Koncewicz-Jarząb

Director of the Bureau of Feed, Pharmacy and Disposal. Chief Veterinary Inspectorate.

Mirosław Baranowski DVM, PhD

Department of Veterinary Prevention and Feed Hygiene, Faculty of Veterinary Medicine, UWM in Olsztyn

Reports

Selected Sanitary and Veterinary Aspects of Insect Protein Production

Selected legal aspects of insect breeding for feed purposes.

Joanna Waclawek-Żułma, Paweł Mackiewicz

Główny Inspektorat Weterynarii

Microscopic method - a guide for detecting components of processed animal proteins in feed

Anna Weiner, Krzysztof Kwiatek, Martyna Skowronek, Monika Mazur-Frejowska, Zbigniew Osiński
Państwowy Instytut Weterynaryjny – Państwowy Instytut Badawczy w Puławach

“Beautiful Mourning” – Welfare in Insect Farming

Dr. Wojciech Zahaczewski

Co-founder and Sales Director in OVAD Co. Ltd.

“Development of the Insect Sector in Poland”

Dr. Habil. Tadeusz Bakula, Professor at the University of Warmia and Mazury in Olsztyn

Department of Veterinary Prevention and Feed Hygiene, Faculty of Veterinary Medicine, UWM in Olsztyn

Polish Association of Insect Breeders and Producers

14⁴⁵ – 15³⁰ lunch break

Lunch will be served in the cafeteria at the Conference Center, ul. Dybowskiego 11

15³⁰ – 16³⁰ Research Project Session (C)**Conference Room**

Lecturer:

Assoc. Prof Łukasz Zielonka

Department of Veterinary Prevention and Feed Hygiene, Faculty of Veterinary Medicine, UWM in Olsztyn

Assoc. Prof Tadeusz Bakula

Department of Veterinary Prevention and Feed Hygiene, Faculty of Veterinary Medicine, UWM in Olsztyn

Polish Association of Insect Breeders and Producers

Reports**Insect Protein-Based Food for Companion Animals**

(Project financed by the National Centre for Research and Development, contract no. LIDER/5/0029/L-12/20/NCBR/2021)

SensiBug: integrating edible insects into veterinary nutrition for companion animals

Remigiusz Gałęcki

Department of Veterinary Prevention and Feed Hygiene, Faculty of Veterinary Medicine, University of Warmia and Mazury in Olsztyn, Oczapowski Street 13, 10-719 Olsztyn, Poland

Effects of Yellow mealworm-based hypoallergenic dog food on intestinal histology: a rat model study

Maria Hanuszewska-Dominiak¹, Remigiusz Gałęcki²

¹Department of Histology and Embryology, Faculty of Veterinary Medicine, University of Warmia and Mazury in Olsztyn, Oczapowski Street 13, 10-719 Olsztyn, Poland

²Department of Veterinary Prevention and Feed Hygiene, Faculty of Veterinary Medicine, University of Warmia and Mazury in Olsztyn, Oczapowski Street 13, 10-719 Olsztyn, Poland

Assessing the impact of Yellow mealworm-based dog food on canine clinical parameters

Remigiusz Gałęcki

Department of Veterinary Prevention and Feed Hygiene, Faculty of Veterinary Medicine, University of Warmia and Mazury in Olsztyn, Oczapowski Street 13, 10-719 Olsztyn, Poland

Evaluating the effects of an Yellow mealworm - based diet on canine fecal microbiota

Justyna Szulc¹, Adriana Nowak¹, Remigiusz Gałęcki²

¹Department of Environmental Biotechnology, Faculty of Biotechnology and Food Sciences, Lodz University of Technology

²Department of Veterinary Prevention and Feed Hygiene, Faculty of Veterinary Medicine, University of Warmia and Mazury in Olsztyn, Oczapowski Street 13, 10-719 Olsztyn, Poland

16³⁰-17⁰⁰ Discussion

Closing Remarks

End of the Conference

Exhibition in the Hall at the Conference Center UWM

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