



ASPA 25th Congress Book of Abstract

Angela Gabriella D'Alessandro, Pasquale De Palo, Aristide Maggiolino & Marcello Mele

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Italian Journal of Animal Science

The *Italian Journal of Animal Science* is an international peer-reviewed open access journal publishing original scientific papers, reviews and short communications.

The journal serves as essential reading for animal scientists, technicians and all those who research animal production.

The journal encourages submissions of international relevance on the following subjects:

- Animal derived food quality and safety
- Animal genetics and breeding
- Aquaculture, poultry, companion and wild game animals
- Livestock systems, management and environment
- Non-ruminant or ruminant nutrition and feeding
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- Animal behavior
- Animal welfare
- In vitro studies that have an application to farmed livestock

Manuscripts must address topics based on research at molecular, cellular, organ, whole animal and production system levels. Manuscripts discussing milk or meat analysis and compositions must show a direct link to either livestock production system, product quality, animal feeding/nutrition, animal genetics or breeding. Manuscripts describing laboratory animal models will be considered where the study highlights a potential benefit to farmed livestock.

Submissions discussing epidemiology, parasitology, infective diseases, food-borne diseases do not fit with the aims and scope of the journal.

Meeting reviews, book reviews and conference supplements are also published, as well as news and guidelines from the Animal Science and Production Association (ASPA). We welcome submissions from ASPA members and non-members alike.

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ASPA 25th Congress

Monopoli (BARI - ITALY), June 13-16, 2023

Guest Editors

**Angela Gabriella D'Alessandro, Pasquale De Palo, Aristide Maggiolino,
and Marcello Mele**

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ASPA 25th Congress

Monopoli (BARI - ITALY), June 13-16, 2023

#ASPA2023

ASPA 25th Congress Book of Abstract

The 25th congress of the Animal Science and Production Association

“Animal Production Science: Innovations and sustainability for future generation” is under patronage of Loghi patrocini

**Monopoli (BARI - ITALY),
June 13-16, 2023**

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The 25th Congress of the Animal Science and Production Association (ASPA) is hosted in Monopoli (Puglia) by the University of Bari.

The Congress is entitled "Animal Production Science: innovations and sustainability for future generations" and returns to Puglia after its second edition which was held in Bari 47 years ago.

The congress is hosted at the charming Torre Cintola resort in Monopoli (Bari) from the 13th to the 16th June 2023, a special location also for celebrating the 50th anniversary of our association.

This edition of the ASPA congress has received a total of 467 scientific contributions: 297 oral presentations and 170 posters have been selected. This is a very great result! The highest number of contributions of ever, according to our best knowledge. Moreover, 24 invited lectures will be presented.

The congress has implemented concrete actions for improving its sustainability, like the dematerialization of the posters (available through a smartphone app and on touch screen desks), the increasing of the use of public transportations, the donation of leftover food to charities, as well as the increased use of zero-mile food. Moreover, the Congress opens a focus also on the role of women in Science, dedicating the congress rooms to neglected scientists poorly celebrated but fundamental for the progress of knowledge and societal development. Finally, a disseminated photo exhibition in the Congress rooms on Marginal Areas is a further opportunity for attendees to deepen the knowledge of Southern Italy landscapes and their relationships with livestock industry.

The scientific program is enriched by 23 main lectures, covering all the main topics. Many thanks for the job to the President of the Organizing Committee, Prof. Pasquale De Palo, and to all the components. I also wish to thank all the members of the Scientific Committee, starting from the President Prof. Angela Gabriella D'Alessandro.

I would like to congratulate and to thank all people that have contributed to the organization of the meeting and that have collaborated in reviewing the summaries. A special thanks to them for what they have done for ASPA and for the Italian Animal Science. A special thank also to Prof. Marcello Mele, Editor-in-Chief of the Italian Journal of Animal Science, for having contributed to the edition of the proceedings.

Nicolò Pietro Paolo Macciotta
ASPA President



ASPA 25th Congress

Monopoli (BARI - ITALY), June 13-16, 2023

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Program at a glance

Tuesday June 13th








	Room Daunia	Room Peucetia	Room Messapia	Room Apulia
	14:30-17:00 Chicken biodiversity <i>Session 01</i> Invited: Cerolini Silvia Chairs: Iaffaldano N., Schiavone A.	14:30-16:00 Environmental footprint <i>Session 02</i> Chairs: Sevi A., Zucali M.E.	14:30-16:30 Advances in dietary feed supplementation <i>Session 03</i> Chairs: Calabrò S., De Palo P.	/
17:00 – 17:30	<i>Coffee break</i>			
	/	/	/	Opening Ceremony
20:00	<i>Welcome cocktail</i>			

Opening Ceremony

Chairs: **Nicolò Pietro Paolo Macciotta, Giuseppe Pulina**

17:30	Institutional Addresses
18:00	Book launch and presentation "Carni e salumi: le nuove frontiere della sostenibilità" by Bernardi E., Capri E., Pulina G., Franco Angeli Ed. Giuseppe Pulina <i>President of "Carni sostenibili" Association and Full Professor of "Livestock farming ethics and sustainability" University of Sassari</i>
18:15	Policies and perspectives of European livestock industry: which role is played by the Animal Science Community? Paolo De Castro <i>Member of the EU Committee on Agriculture and Rural Development and Professor of Agricultural Economics</i>
18:45	National Policies and future perspectives for livestock and animal food supply chain in Italy: is there a role for Animal Science Community? Giuseppe Blasi <i>Head of Department of European and International Policies and Rural Development, Ministry of Agriculture, Food Sovereignty and Forestry</i>
19:15	ASPA and its first 50 years Nicolò Pietro Paolo Macciotta <i>ASPA President</i>
20:00	Official Opening of the 25th ASPA Congress

Wednesday June 14th

	Room Daunia	Room Peucetia	Room Messapia	Room Apulia
	<p>08:15 - 11:00 Environmental footprint Session 04</p>  <p>Invited: Kuipers Abele Chairs: Bernabucci U., Sepe L.</p>	<p>08:30 - 11:00 Advances in dietary feed supplementation Session 05</p>  <p>Invited: Salem Abdelfattah Z. Chairs: D'Alessandro A.G., Formigoni A.</p>	<p>08:30 - 11:00 Precision livestock farming: production efficiency in dairy cows Session 06</p>  <p>Invited: Giordano Julio O. Chairs: Abeni F., Pugliese C.</p>	<p>08:30 - 11:00 Development of genomics in biodiversity Session 07</p> <p>Invited: Hanotte Olivier Chairs: Cecchinato A., Ciani E.</p>
11:00 - 11:30	<i>Coffee break</i>			
	<p>11:30 - 13:30 Environmental footprint Session 08</p> <p>Chairs: Claps S., Sandrucci A.</p>	<p>11:30 - 13:30 Sustainable feeding strategies in livestock systems Session 09</p>  <p>Chairs: Bonanno A., Tufarelli V.</p>	<p>11:30 - 13:30 Animal welfare and health Session 10</p>  <p>Invited: Chebel Ricardo C. Chairs: Trevisi E., Gottardo F.</p>	<p>11:30 - 13:45 Advances in meat quality Session 11</p>  <p>Invited: Gagaoua Mohammed Chairs: Marino R., Mele M.</p>
13:30 - 14:30	<i>Lunch</i>			
	<p>14:30 - 16:30 Advances in rabbit and poultry products Session 12</p> <p>Chairs: Maiorano G., Trocino A.</p>	<p>14:30 - 16:15 Genomic tools for ruminant resiliency Session 13</p> <p>Invited: Miglior Filippo Chairs: Pilla F., Crepaldi P.</p>	<p>14:30 - 16:30 Heat stress and climate resilience in livestock Session 14</p> <p>Invited: Dahl Geoffrey E. Chairs: Braghieri A., Cozzi G.</p>	<p>14:30 - 16:30 Metagenomic approaches in animal science Session 15</p> <p>Invited: Laurenco Jeferson Menezes Chairs: Trevisi P., Castiglioni B.</p>
16:30 - 17:00	<i>Coffee break</i>			
	<p>17:00 - 18:30 New perspective in bees' production Session 16</p> <p>Chairs: Fontanesi L., Minozzi G.</p>	<p>17:00 - 18:05 Breeding for our future Session 17</p>  <p>Invited: Cassandro Martino Chairs: Campanile G., Martelli G.</p>	<p>17:00 - 19:30 Advances in meat quality Session 18</p> <p>Chairs: De Marchi M., Serra A.</p>	<p>17:00 - 18:30 Metagenomic approaches in animal science Session 19</p> <p>Chairs: Buccioni A., Conte G.</p>
20:30	<i>Typical Dinner</i>			

Thursday June 15th

	Room Daunia	Room Peucetia	Room Messapia	Room Apulia
	<p>08:30 - 10:30 Animal welfare and health Session 20</p> <p>Chairs: Albenzio M., Tarantola M.</p>	<p>08:15 - 11:00 Sustainability and innovation in aquaculture Session 21</p> <p>Chairs: Centoducati G., Parisi G.</p>	<p>08:15-11:15 Advances in milk and dairy products quality Session 22</p>  <p>Chairs: Di Trana A.C., Martini M.</p>	<p>08:15 - 11:00 New paradigms in animal breeding Session 23</p> <p>Invited: Lourenco Daniela Chairs: Ciampolini R., Landi V.</p>
11:00 – 11:30	Coffee break			
	<p>11:30 - 13:15 Advances in rabbit and poultry products Session 24</p> <p>Invited: Stadnicka Katarzyna Chairs: Bovera F., Soglia F.</p>	<p>11:30 - 13:45 L.E.O. project: the Italian research commitment for the future livestock strategies Session 25</p>  <p>Invited: Burke Martin Chairs: Donda M., Negrini R.</p>	<p>11:30 - 13:30 Advances in milk and dairy products quality Session 26</p> <p>Chairs: Maggiolino A., Summer A.</p>	<p>11:30 - 13:15 Genomic tools for ruminant resiliency Session 27</p>  <p>Invited: Di Croce Fernando Chairs: Lasagna E., Sacchi P.</p>
13:30 – 14:30	Lunch			
	<p>14:30 - 16:30 Recent advances in mammary gland biology and health Session 28</p> <p>Chairs: Caroprese M., Lacetera N.</p>	<p>14:30 - 17:15 Sustainable feeding strategies in livestock systems Session 29</p>  <p>Invited: Pulina Giuseppe Chairs: Pinotti L., Masucci F.</p>	<p>14:30 - 16:45 Precision Livestock Farming: production efficiency and environmental impacts Session 30</p> <p>Invited: Rose Guilherme O'Brien Bernardette Chairs: Mattiello S., Neglia G.</p>	<p>14:30 - 16:30 Genomic tools for ruminant resiliency Session 31</p> <p>Invited: Lecchi Cristina Chairs: Bozzi R., Pasquini M.</p>
16:30 – 17:00	Coffee break			
17:00	/	/	/	ASPA Assembly
20:30	Social Dinner			

Friday June 16th

	Room Daunia	Room Peucetia	Room Messapia	Room Apulia
	<p>08:30 - 10:30 Animal welfare and health <i>Session 32</i></p> <p>Invited: Laloë Denis Chairs: Di Palo R., Santillo A.</p>	<p>08:30 - 11:00 Development of genomics in biodiversity <i>Session 33</i></p> <p>Invited: Laloë Denis Chairs: Biffani S., Cipolat-Gotet C.</p>	<p>08:15 - 11:00 Companion animals <i>Session 34</i></p> <p>Invited: Switonsky Marek Chairs: Cutrignelli M., Stefanon B.</p>	<p>08:00 - 11:00 Sustainable feeding strategies in livestock systems <i>Session 35</i></p> <p>Invited: Atzori Alberto Stanislo Chairs: Di Francia A., Bailoni L.</p>
11:00 - 11:30	<i>Coffee break</i>			
	<p>11:30 - 13:30 Research and sustainability in horse production <i>Session 36</i></p> <p>Invited: Vial Celine Chairs: Salimei E., Capomaccio S.</p>	<p>11:30 - 13:15 Insects' production for animal feeding <i>Session 37</i></p> <p>Chairs: Chiofalo B., Gasco L.</p>	<p>11:30 - 13:30 Advances in dietary feed supplementation <i>Session 38</i></p> <p>Chairs: Trabalza Marinucci M., Nudda A.</p>	<p>11:30 - 13:15 Genomic tools for animal resiliency and susceptibility <i>Session 39</i></p> <p>Invited: Vergani Andrea Mario Chairs: Bagnato A., Sartori C.</p>

O593

A promising mix of protein sources obtained from biorefinery as partial replacement of dietary ingredients in aquafeed for gilthead sea bream (*Sparus aurata*) broodstock

Luciano Foglio^a, Lorenzo Proietti^a, Andrea Galli^a, Lucia Aidos^b, Alessia Di Giancamillo^c, Giorgio Mirra^d, Simona Paolacci^e, Julie Maguire^e, Giorgos Markou^f, Francisco Javier Alarcón^g and Katia Parati^a

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There is an increased research activity focusing on new protein and oil sources able to secure the sustainability of aquaculture productions. The factors that mainly limit the replacement of fishmeal and fish oil with alternative ingredients are their lack of essential amino acids and in long chain-polyunsaturated fatty acids (LC-PUFA). In particular, a balanced diet is necessary for broodstock, to guarantee the adequate development of brain and larval tissues and reproductive performance.

The aim of this study is the evaluation of the reproductive performance of gilthead seabream broodstock (*Sparus aurata*) fed on experimental diets based on innovative and valuable ingredients produced utilizing aquaculture wastewater and fish processing wastes. To date, no data are available on the potential inclusion of such ingredients coming from biorefinery as fish and plant-based ingredients substitution in broodstock aquafeed.

A control diet (CONTR) was prepared using a blend of conventional protein sources while an experimental diet (H1) was prepared using a mix of alternative and valuable ingredients (microalgae, *Nannochloropsis sp*; duckweed, *Lemna minor*; insects, *Hermetia illucens* and macroalgae, *Alaria esculenta*) as a partial replacement (10%) of fishmeal and vegetable protein sources.

Gilthead seabream broodstock (male weight average 0.512 ± 0.087 kg and female weight average 2.522 ± 0.34 kg) were randomly

allocated in circle-shaped 5000-L-fiberglass tanks, (22 fish/tank, 15 males and 7 females) in a RAS, under controlled rearing conditions, and nutritionally challenged for 6 months, 2 months before pre- and 4 months post-spawning. Being the alternative ingredients produced using aquaculture waste, diets were evaluated at nutritional, chemical and microbiological levels. No contaminants were found in the diets, which resulted similar in their proximate composition and fatty acids and amino-acids profile, except for the Docosahexaenoic acid (DHA), for which H1 diets resulted more enriched respect to the control (CONTR). Spawning quality parameters were significantly different between H1 and CONTR broodstock ($p < 0.05$). In particular, the mix inclusion seems positively affect the hatching parameter and larval survival at 6 days post-hatch ($p < 0.05$). No alterations in terms of skeletogenesis, gut, and muscle development were found in larvae sampled from H1 with respect to CONTR group. Further studies are underway to verify the health parameters of the broodstock.

Acknowledgments

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O585

Suitability of Life Cycle Assessment (LCA) for the estimation of donkey milk environmental impact: a case study

Andrea Bragaglio^a, Elio Romano^a, Maurizio Cutini^a, Salvatore Claps^b and Pasquale De Palo^c

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Nowadays donkeys are interested by two innovative aspects: onotherapy and milk production. Donkey milk, similar to human one, characterised as high added value food, is also adopted as raw material in cosmetics. Growing public interest suggests a pilot study on the sustainability of donkey milk, according to LCA criterion. Two different models were described: Real Scenario Model (RSM) and Increased Milk Production Model (IMPM), representing the farm with declared milk yield (1 kg of raw milk as functional unit, FU) and the same, hypothesising a larger size of FU, respectively. Allocation involved RSM and IMPM scenario both, thus different values of impact categories, i.e. GWP (kg CO₂