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Animal Science



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ASPA 24th CONGRESS

Padova, September 21-24, 2021

Book of Abstracts

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ASPA 24th Congress Book of Abstract

Roberto Mantovani & Alessio Cecchinato

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Italian Journal of Animal Science

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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
- Production physiology and functional biology of farmed, companions and wild game animals.
- 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.

Article publishing charge

The standard article publishing charge (APC) for this journal is US\$900 / €795 / £690. Depending on your location, these charges may be subject to local taxes.

For members of the Animal Science and Production Association, the publication fee is US\$450 / €400 / £345. Depending on your location, these charges may be subject to local taxes. There are no submission charges for this journal.

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ASPA 24th Congress

Padova, September 21-24, 2021

Guest Editors

Roberto Mantovani (Coordinator), Alessio Cecchinato, Giovanni Bittante, Maurizio Ramanzin, Lucia Bailoni, Mauro Penasa, Flaviana Gottardo, Sara Pegolo, Giorgio Marchesini, Rebecca Ricci, Cristina Sartori, Marco Cullere, Marco Birolo, Severino Segato, Valentina Bonfatti, Marta Brscic, Luigi Gallo, Stefano Schiavon, Franco Tagliapietra

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Padova, September 21-24, 2021

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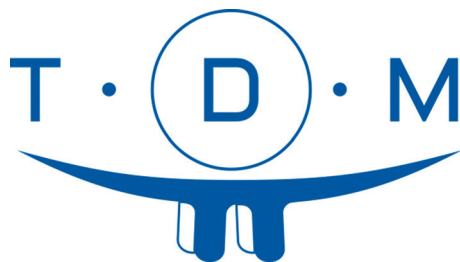


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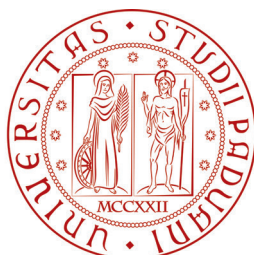


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ASPA 24th Congress

Padova, September 21-24, 2021

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24th

Congress of the Animal Science and production Association

24° Congresso dell' Associazione per la Scienza e le Produzioni Animali

**Padova,
September 21-24, 2021**

Venue

“Fiore di Botta”

University of Padova

Via del Pescarotto, 8-Padova

ASPA 24th Congress

Padova, September 21-24, 2021

LEGEND

ENVIRONMENT (E)
ANIMALS (A)
FOOD (F)
OTHER (O)
to be defined

Tuesday 21 st September 2021	
Fiera di Padova	
12:00	ARRIVAL - REGISTRATION
PLENARY SESSION: Animal Science and Society Concerns	
15:00	Introduction
15:15	Nicolò Pietro Paolo Macciotta
15:15	MAIN LECTURE 1 <i>Animal production and society</i> Massimiano Bucchi
15:45	MAIN LECTURE 2 <i>Societal and political demands on farmed animal welfare: an evolving landscape</i> Elena Nalon
16:15	Coffee Break
16:45	MAIN LECTURE 3 <i>From Padova 1987 to Padova 2021: evolution of the scientific research</i> Giovanni Bittante
17:15	MAIN LECTURE 4 <i>Challenges of Italian livestock systems towards a full environmental sustainability</i> Bruno Ronchi
17:45	OPENING CEREMONY Welcome addresses
18:00	
18:15	MAIN LECTURE 5 <i>Eight centuries of the University of Padua (1222-2022): An historical sketch</i> Fabio Zampieri
18:45	MAIN LECTURE 6 <i>From Pietro Arduino and Giuseppe Orus to the Agripolis Campus: analogies with present times between historical realities and possible fakes</i> Lucia Bailoni
19:30	Welcome Cocktail Dinner

Wednesday 22 nd September 2021							
Fiore di Botta							
ROOM GALILEO		ROOM GIOTTO		ROOM PETRARCA		ROOM ELENA CORNARO PISCOPIA	
09:00	SESSION 1 - (E) Alternative feeds and waste recycling - I (6 oral)	08:30	SESSION 2 - (A) Management strategies to improve animal health, welfare and resilience - I (1 main lecture + 5 oral)	09:00	SESSION 3 - (A) Role and characterization of local breeds (6 oral)	09:00	SESSION 4 - (F) Nutritional profile of food - I (1 main lecture + 4 oral)
10:30		10:15		10:30		10:30	
Coffee Break / Poster Session 1							
11:00	SESSION 5 - (E) Alternative feeds and waste recycling - II (4 oral)	11:00	SESSION 6 - (A) Management strategies to improve animal health, welfare and resilience - II (6 oral)	11:00	SESSION 7 - (A) Genomic and phenomic tools to improve livestock animals - I (1 main lecture + 4 oral)	11:00	SESSION 8 - (F) Nutritional profile of food - II (5 oral)
12:30		12:30		12:30		12:30	
Lunch							
14:00	SESSION 9 - (E) Non conventional livestock systems (1 main lecture + 4 oral)	14:00	SESSION 10 - (A) Management strategies to improve animal health, welfare and resilience - III (6 oral)	14:00	SESSION 11 - (A) Genomic and phenomic tools to improve livestock animals - II (1 main lecture + 5 oral)	14:00	SESSION 12 - (F) Food production and processing (6 oral)
15:30		15:30		15:30		15:30	

Thursday 23rd September 2021

Fiore di Botta				
ROOM GALILEO		ROOM GIOTTO	ROOM PETRARCA	ROOM ELENA CORNARO PISCOPIA
09:00 SESSION 13 - (E) Monitoring and mitigating impacts on environment - I (6 oral)		08:30 SESSION 14 - (A) Breeding strategies to improve animal health, welfare and resilience (1 main lecture + 6 oral)	SESSION 15 - (O) Feed efficiency and growth performance - I (5 oral)	09:00 SESSION 16 - (F) Food sensory quality, labelling and valorization (6 oral)
10:30 Coffee Break / Poster Session 2				
11:00 SESSION 17 - (E) Monitoring and mitigating impacts on environment - II (1 main lecture + 4 oral)		11:00 SESSION 18 - (A) Behaviour and welfare (6 oral)	SESSION 19 - (O) Feed efficiency and growth performance - II (6 oral)	11:00 SESSION 20 - (F) Feed effects on nutritional profile of animal products - I (6 oral)
12:30 Lunch				
14:00 SESSION 21 - (A) Precision livestock farming - I (1 main lecture + 4 oral)		14:00 SESSION 22 - (O) Free Communications (6 oral)	SESSION 23 - (A) Genomics of local breeds (1 main lecture + 4 oral)	14:00 SESSION 24 - (F) Feed effects on nutritional profile of animal products - II (6 oral)
15:30 Coffee Break				
16:00 SESSION 25 - (A) Precision livestock farming - II (3 oral)		16:00 SESSION 26 - (A) Omics technologies - I (3 oral)	SESSION 27 - (A) Quantitative approaches, inbreeding and crossbreeding - I (4 oral)	16:00 SESSION 28 to be defined 17:00
17:00 Oral presentations & Posters Awards				
17:15 Meeting of ASPA Members				
19:30				
20:00 Transfer by bus from Fiore di Botta to Abano Terme for Social Dinner				

Friday 24th September 2021

Fiore di Botta				
ROOM GALILEO		ROOM GIOTTO	ROOM PETRARCA	ROOM ELENA CORNARO PISCOPIA
09:00 SESSION 29 - (A) Animal efficiency - I (6 oral)		09:00 SESSION 30 - (A) Omics technologies - II (6 oral)	SESSION 31 - (A) Quantitative approaches, inbreeding and crossbreeding - II (6 oral)	09:00 SESSION 32 - (A) Companion animals and society - I (1 main lecture + 4 oral)
10:30 Coffee Break				
11:00 SESSION 33 - (A) Animal efficiency - II (6 oral)		11:00 SESSION 34 - (A) Omics technologies - III (6 oral)	SESSION 35 - (A) Genetic diversity (6 oral)	11:00 SESSION 36 - (A) Companion animals and society - II (5 oral)
12:30 End of the congress				

ASPA 24th Congress

Padova, September 21-24, 2021

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Agenda Invited Speakers

September, 21st

Fiera di Padova, PLENARY SESSION "Animal Science and Society Concerns"

Chair:	Nicolò Pietro paolo Macciotta	
15.15-15.45	Massimiano Bucchi	
	<i>Animal production and society</i>	IS001
15.45-16.15	Elena Nalon	
	<i>Societal and political demands on farmed animal welfare: an evolving landscape</i>	IS002
16.45-17.15	Giovanni Bittante	
	<i>From Padova 1987 to Padova 2021: evolution of the scientific research</i>	IS003
17.15-17.45	Bruno Ronchi	
	<i>Challenges of Italian livestock systems towards a full environmental sustainability</i>	IS004

Fiera di Padova - Opening Ceremony

Chair:	Giulio Cozzi	
18.15-18.45	Fabio Zampieri	
	<i>Eight centuries of the University of Padua (1222-2022): An historical sketch</i>	S005
18.45-19.15	Lucia Bailoni	
	<i>From Pietro Arduino and Giuseppe Orus to the Agripolis Campus: analogies with present times between historical realities and possible fakes</i>	IS006

September, 22nd

Fiore di Botta, Room Giotto - Management strategies to improve animal health, welfare and resilience - I

Chairs:	Giulio Cozzi, Giovanna Martelli	
8.30-09.00	Annalisa Scollo	
	<i>Mutilations in pigs: searching for a new state-of-mind of the farmer</i>	IS007

Fiore di Botta, Room Elena Cornaro Piscopia - Nutritional profile of food - I

Chairs:	Massimiliano Petracci, Angela Trocino	
09.00-09.30	Frédéric Leroy	
	<i>Animal source foods in the 21st century - obsolete or essential?</i>	IS008

Fiore di Botta, Room Petrarca - Genomic and phenomic tools to improve livestock animals - I

Chairs:	Alessio Cecchinato, Martina Zappaterra	
11.00-11.30	Joao Reboucas Dorea	
	<i>Harnessing the Power of Computer Vision System to Improve Management Decisions in Livestock Operations</i>	IS009

**Fiore di Botta, Room Galileo - Non-conventional
livestock systems**

Chairs: Maurizio Ramanzin, Luca Maria Battaglini
 14.00-14.30 *Daniel Martin Collado*
*Best practices for targeted policies to enhance ecosystem services in European
 livestock agroecosystems* IS010

**Fiore di Botta, Room Petrarca - Genomic and phenomic
tools to improve livestock - II**

Chairs: Roberto Mantovani, Riccardo Bozzi
 14.00-14.30 *Ignacy Misztal*
Genomic tools to improve livestock IS011

September, 23rd

**Fiore di Botta, Room Giotto - Breeding strategies to improve
animal health, welfare and resilience**

Chairs: Fabio Pilla, Valentina Bonfatti
 08.30-09.00 *Augustin Blasco*
New challenges: Global warming, welfare, resilience. How can genetics help? IS012

**Fiore di Botta, Room Galileo - Monitoring and mitigating
impacts on environment**

Chairs: Mauro Spanghero, Stefano Schiavon
 11.00-11.30 *Maurizio Ramanzin*
Environmental sustainability of livestock systems: going beyond impacts? IS013

Fiore di Botta, Room Galileo - Precision livestock farming - I

Chairs: Giorgio Marchesini, Fabio Abeni
 14.00-14.30 *Fabio Abeni*
PLF applications for Italian animal productions: critical aspects and opportunities IS014

Fiore di Botta, Room Petrarca - Genomics of local breeds

Chairs: Baldassare Portolano, Emiliano Lasagna
 14.00-14.30 *Paolo Ajmone Marsan*
Livestock biodiversity in the genomic era IS015

September, 24th

**Fiore di Botta, Room Elena Cornaro Piscopia - Companion
animals and society**

Chairs: Rebecca Ricci, Paola Crepaldi
 09.00-09.30 *Marianne Diez*
The evolution of proteins in the nutrition of dogs and cats IS016

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Agenda for oral presentations

Wednesday, September 22nd - Room Galileo

SESSION 1 - Alternative feeds and waste recycling - I

Chairs:	Antonella Dalle Zotte, Laura Gasco	
09.00-09.15	Erika Pellattiero, Marco Cullere, Federica Zanetti, Barbara Alberghini, Sara Berzuini, Silvia Tavarini, Incoronata Galasso, <u>Antonella Dalle Zotte</u> <i>Effect of Camelina (Camelina sativa L. Crantz) dietary inclusion on quails growth performance and carcass traits</i>	O001
09.15-09.30	<u>Nicola Francesco Addeo</u> , Alessandra Roncarati, Giovanni Piccolo, Antonino Nizza, Fulvia Bovera <i>Potential use of a queen bee larvae meal (Apis mellifera ligustica Spin.) in animal nutrition: a nutritional and chemical-toxicological evaluation</i>	O002
09.30-09.45	<u>Yazavinder Singh</u> , Eszter Zsedely, Georgina Takacs, Zsolt Herman, Klaudia Szalai, Marco Cullere, Silvia Cappelozza, Antonella Dalle Zotte <i>Effect of silkworm (Bombyx mori) dietary inclusion on chickens' growth performance and carcass traits</i>	O003
09.45-10.00	<u>Giulia Pascon</u> , Maria Messina, Lisa Petit, Luísa Maria Pinheiro Valente, Beatriz Monteiro Oliveira, Cyrille Przybyla, Gilbert Dutto, Francesca Tulli <i>Marine microalgal biomass from fish farming effluents: potential application in aquafeeds</i>	O004
10.00-10.15	<u>Sara Bellezza Oddon</u> , Ilaria Biasato, Laura Gasco <i>Isoenergetic-practical and semi-purified diets for protein requirement determination in Hermetia illucens larvae: consequences on life history traits</i>	O005
10.15-10.30	<u>Francesco Bordignon</u> , Laura Gasco, Marco Birolo, Christian Caimi, Gerolamo Xiccato <i>Effects of the inclusion of Hermetia illucens meal in diets for rainbow trout (Oncorhynchus mykiss) reared in a low-tech aquaponic system</i>	O006

Wednesday, September 22nd - Room Giotto

SESSION 2 - Management strategies to improve animal health, welfare and resilience - I

Chairs:	Giulio Cozzi, Giovanna Martelli	
09.00-09.15	<u>Luciana Bava</u> , Alice Comparelli, Maria Cecilia Bianchi, Alberto Tamburini, Maddalena Zucali <i>Dry period management practices in 130 dairy farms</i>	O007
09.15-09.30	<u>Luca Turini</u> , Alice Cappucci, Fabrizio Bertelloni, Elisa Gasparoni, Francesca Vichi, Marcello Mele <i>Mutual relationship between technological, structural and productive features in dairy sheep farms: a multivariate approach</i>	O008
09.30-09.45	<u>Diana Giannuzzi</u> , Rossella Tessari, Enrico Fiore, Matteo Gianesella, Vittoria Bisutti, Sara Pegolo <i>Association between liver ultrasound measurements and hematochemical indicators for early prediction of metabolic alterations in Holstein cows</i>	O009
09.45-10.00	<u>Luca Cattaneo</u> , Andrea Minuti, Fiorenzo Piccioli Cappelli, Erminio Trevisi <i>Blood biomarkers before dry-off are related to better adaptation to transition period in dairy cows</i>	O010
10.00-10.15	<u>Isabella Lora</u> , Giovanna Ranzato, Luisa Magrin, Giulio Cozzi <i>Comparison between cow milk and a high-energy whey-based milk replacer for the weaning of Holstein dairy heifers</i>	O011

Wednesday, September 22nd - Room Petrarca

SESSION 3 - Role and characterization of local breeds

Chairs:	Luca Fontanesi, Cristina Sartori	
08.30-08.45	<u>Elena Benedetti del Rio</u> , Marta Teston, Edi Defrancesco, Paola Gatto <i>Sustainable use of local sheep breeds in Italian Eastern Alps</i>	O012
08.45-09.00	<u>Enrico Mancin</u> , Cristina Sartori, Nadia Guzzo, Beniamino Tuliozzi, Roberto Mantovani <i>Change of accuracy in EBVs due to genomic information in the small Rendena cattle populations</i>	O013
00.00-09.15	<u>Giulia Foggi</u> , Francesca Ciucci, Laura Casarosa, Elisabetta Giannessi, Carla Lenzi, Maria Conte, Marcello Mele <i>Histochemical muscle fibre features and gene expression in Maremmana and Aubrac steers</i>	O014
09.15-09.30	<u>Mario Barbato</u> , Elia Vajana, Elisa Somenzi, Oliver Selmoni, Marcello Del Corvo, Michèle Tixier-Boichard, Stéphane Joost, Barbara Lazzari, Alessandra Stella, Paolo Ajmone Marsan <i>Deciphering climate-mediated adaptation in European sheep</i>	O015
09.30-09.45	<u>Rosalia Di Gerlando</u> , Ilaria Rizzuto, Marco Tolone, Angelo Moscarelli, Maria Teresa Sardina <i>Prion protein (PRNP) gene polymorphisms in Valle del Belice sheep breed</i>	O016
09.45-10.00	<u>Piero Franceschi</u> , Paolo Formaggioni, Francesca Vighi, Elena Bortolazzo, Massimo Malacarne <i>Physico-chemical characteristics of milk from autochthonous cattle breeds of the Emilia Romagna region</i>	O017

Wednesday, September 22nd - Room Elena Cornaro Piscopia

SESSION 4 - Nutritional profile of food - I

Chairs:	Massimiliano Petracci, Angela Trocino	
09.30-09.45	<u>Alice Cartoni Mancinelli</u> , Alessandro Dal Bosco, Elisa Angelucci, Claudia Ciarelli, Castellini Cesare <i>Lipid metabolism in different Italian poultry breed and crossbreed</i>	O018
09.45-10.00	<u>Nicolo' Amalfitano</u> , Mohamed-Laid Haddi, Hamida Benabid, Franco Tagliapietra <i>Detailed mineral profile of milk from cows, buffaloes, goats, sheep, dromedary camels, and donkeys and minerals recovery in cheese</i>	O019
10.00-10.15	<u>Elena Mariani</u> , Anna Lante, Claudio Cipolat-Gotet, Giovanna Lomolino, Federica Tinello, Massimo Malacarne, Andrea Summer <i>Animal and environmental effects on protease and lipase activity of bovine milk</i>	O020
10.15-10.30	<u>Vittoria Bisutti</u> , Alice Vanzin, Alessandro Toscano, Lucio Flavio Macedo Mota <i>Associations among somatic cell count, differential somatic cell count and milk protein profile in Holstein cattle</i>	O021

Wednesday, September 22nd - Room Galileo

SESSION 5 - Alternative feeds and waste recycling - II

Chairs:	G. Matteo Crovetto, Biagina Chiofalo	
11.00-11.15	<u>Francesco Serrapica</u> , Felicia Masucci, Maura Sannino, Salvatore Faugno, Claudia Lambiase, Antonio Di Francia <i>Peanut (<i>Arachis hypogaea</i>) crop within a circular economy perspective: potential use of biomass as forage</i>	O022
11.15-11.30	<u>Sheyla Arango</u> , Elisabetta Bacchin, Federico Fontana, Massimo Montanari, Lucia Bailoni <i>Agronomical traits and chemical characterization of whole plant and botanical fractions of six varieties of hemp cultivated in the Veneto region</i>	O023
11.30-11.45	<u>Andrea Rota Graziosi</u> , Stefania Colombini, Gianni Matteo Crovetto, Gianluca Galassi, Maria Chiaravalli, Marco Battelli, Luca Rapetti <i>Partial replacement of soybean meal with self-produced whole-plant soybean silage in lactating dairy cows diet</i>	O024
11.45-12.00	<u>Doriana E.A. Tedesco</u> , Sveva Scarioni, Aldo Tava <i>Biorefinery approach to valorise vegetable waste from the wholesale market</i>	O025

Wednesday, September 22nd - Room Giotto

SESSION 6 - Management strategies to improve animal health, welfare and resilience - II

Chairs: Flaviana Gottardo, Martina Tarantola

- 11.00-11.15 Sara Pegolo, Rossella Tessari, Enrico Fiore, Matteo Gianesella, Diana Giannuzzi, Riccardo Negrini, Alessio Cecchinato
Quarter-level analysis of mastitis infection and relationships with milk traits in Holstein cattle **O026**
- 11.15-11.30 Basilio Randazzo, Matteo Zarantoniello, Roberto Cerri, Giorgia Gioacchini, Maria Messina, Alessia Belloni, Enrico Daniso, Emilio Tibaldi, Ike Olivotto
*Effects of microalgae and insect meal supplementation to diets high in soybean meal, deprived of fish meal, on gut health of seabass (*D. labrax*) and sea bream (*S. aurata*)* **O027**
- 11.30-11.45 Aristide Maggolino, Nicola Bartolomeo, Umberto Bernabucci, Attilio Rossoni, Vincenzo Landi, Pasquale De Palo
Heat waves effects on Italian Brown Swiss milk production **O028**
- 11.45-12.00 Francesca Rita Dinardo, Elisabetta Casalino, Grazia Maria Liuzzi, Giovanna Calzaretto, Pasquale De Palo
Dietary supplementation with nucleotides in calves: effects on oxidative balance and immune response **O029**
- 12.00-12.15 Silvia Carta, Eleni Tsiplakou, Christina Mitsiopolou, Giuseppe Pulina
The effect of cocoa husks supplementation on fatty acids profile and blood and milk antioxidant status of dairy ewes **O030**
- 12.15-12.30 Paolo Trevisi, Diana Luise, Federico Correa, Marika Vitali, Elisa Spinelli, Roberta Ruggeri, Kristian Juul Volshøj, Jørn Munch Madsen, Mai Anh Ton Nu, Paolo Bosi
Effect of two different ways for milk replacer administration on the growth performance and welfare of piglets **O031**

Wednesday, September 22nd - Room Petrarca

SESSION 7 - Genomic and phenomic tools to improve livestock animals - I

Chairs: Alessio Cecchinato, Martina Zappaterra

- 11.30-11.45 Giacomo Rovelli, Maria Gracia Luigi Sierra, Simone Ceccobelli, Dailu Guan, Francesco Perini, Fiorella Sbarra, Andrea Quaglia, Marcel Amills Eras, Emiliano Lasagna
A genome wide association study for beef production traits in five Italian cattle breeds **O032**
- 11.45-12.00 Vincenzo Landi, Gabriele Senczuk, Marco Ragni, Simona Taricone, Francesco Giannico, Francesca Maria Sarti, Emiliano Lasagna, Luigina Rillo, Giuseppe Marsico, Christian Persichilli, Samira Giovannini, Domato Matassino, Elena Ciani, Fabio Pilla
Complex genetic pattern supported by genome wide SNPs data in Mediterranean goat breeds **O033**
- 12.00-12.15 Marco Milanese, Cinzia Marchitelli, Michela Contò, Simona Rinaldi, Danilo Pignotti, Giovanni Chillemi, Alessandra Crisà
Preliminary results of Genome Wide Association Study with milk functional molecules in different cow breeds **O034**
- 12.15-12.30 Daniele Bigi, Nicola Rambaldi Migliore, Riccardo Negrini, Andrea Verini-Supplizi, Luigi Liotta, Antonio Torrioni, Alessandro Achilli, Licia Colli
Donkey worldwide diversity based on control-region data and entire mitogenomes **O035**

Wednesday, September 22nd - Room Elena Cornaro Piscopia

SESSION 8 - Nutritional profile of food - II

Chairs: Andrea Formigoni, Gianluca Neglia

- 11.00-11.15 Chiara Ceccotti, Simona Rimoldi, Federica Iannini, Genciana Terova
*Evaluation of oil from *Camelina sativa* in feeds for gilthead sea bream (*Sparus aurata*): effects on fish growth, fillet fatty acid profile, and gut microbiota composition* **O036**
- 11.15-11.30 Cinzia Marchitelli, Daniele Pietrucci, Marco Milanese, Luca Casadei, Fernando Porcelli, Giovanni Chillemi, Alessandra Crisà
Evaluation of milk quality in different cow breeds by biological markers **O037**

11.30-11.45	<u>Amalia Simonetti</u> , Giulia Grassi, Emilio Gambacorta, Annamaria Perna <i>Antioxidant capacity and polyphenol content of goat milk: comparison among autochthonous breeds</i>	O038
11.45-12.00	<u>Martina Di Corcia</u> , Marzia Albenzio, Antonella della Malva, Mariangela Caroprese, Maria Giovanna Ciliberti, Antonella Santillo, Agostino Sevi, Rosaria Marino <i>Fatty acid profile and endogenous bioactive compounds of beef as affect by duration of linseed supplementation</i>	O039
12.00-12.15	<u>Maria Francesca Guiso</u> , Giorgia Serra, Antonio Fenu, Anna Nudda <i>Colostrum composition of Sarda Dairy Ewes</i>	O040

Wednesday, September 22nd - Room Galileo

SESSION 9 – Non-conventional livestock systems

Chairs:	Maurizio Ramanzin, Luca Maria Battaglini	
14.30-14.45	<u>Ginevra Nota</u> , Roberta Berretti, Marco Pittarello, Davide Barberis, Davide Ascoli, Simone Ravetto Enri, Dino Genovese, Paolo Cornale, Giampiero Lombardi, Michele Lonati, Renzo Motta, Luca Maria Battaglini <i>Food For Forest: an integrative silvi-pastoral system with semi-free-ranging pigs</i>	O041
14.45-15.00	<u>Amanda McPherson</u> , Enrico Sturaro, Maurizio Ramanzin, Andrea Squartini, Salvatore Raniolo, Dorcas H. Franklin, Giuseppe Concheri <i>Investigating dairy grazing patterns and soil microbial trends in the nitrogen cycle across traditional mountain landscapes</i>	O042
15.00-15.15	<u>Salvatore Raniolo</u> , Maurizio Ramanzin <i>Human choices, slope, and vegetation productivity determine pattern of traditional Alpine summer grazing</i>	O043
15.15-15.30	<u>Andrea Confessore</u> , Chiara Aquilani, Lapo Nannucci, Edoardo Bellini, Camilla Dibari, Giovanni Argenti, Nicolina Staglianò, Marco Moriondo, Paola Semenzato, Sandro Nicoloso, Carolina Pugliese <i>Application of Virtual Fencing for the management of Limousine cows at pasture during spring-summer season: preliminary results</i>	O044

Wednesday, September 22nd - Room Giotto

SESSION 10 - Management strategies to improve animal health, welfare and resilience - III

Chairs:	Leonardo Nanni Costa, Silvana Mattiello	
14.00-14.15	<u>Alessio Cotticelli</u> , Angela Salzano, Anna Balestrieri, Pasquale Scala, Giacomo Bertolini, Oscar Tamburis, Gianluca Neglia <i>Relationship among production traits, milk conductivity, somatic cell score and THI in the Italian Mediterranean Buffalo</i>	O045
14.15-14.30	<u>Alessandra Nicolao</u> , Claire Mosnier, Bruno Martin, Dominique Pomies, Enrico Sturaro <i>Suckling of dairy calves by their dams: trade-off between ethical and economic sustainability</i>	O046
14.30-14.45	<u>Giovanna Ranzato</u> , Maria Costanza Galli, Giulio Cozzi <i>Modeling of milk fatty acids profiles in Holstein dairy cows during early and mid lactation</i>	O047
14.45-15.00	Patrizia Di Marco, Donatella Volpatti, Valeria Donadelli, Alberta Mandich, Alessandro Longobardi, Tommaso Petochi, Maria Grazia Fioia, Gloriana Cardinaletti, <u>Giovanna Marino</u> <i>Growth performance and welfare status of gilthead sea bream (<i>Sparus aurata</i>) fed low fish meal diets</i>	O048
15.00-15.15	<u>Diana Luise</u> , Paolo Trevisi, Tristan Chalvon-Demersay, Paolo Bosi <i>Description of the effects of reducing protein content diet on piglets post-weaning intestinal health: a meta-analysis</i>	O049
15.15-15.30	<u>Mayra Gómez Carpio</u> , Dario Rossi, Gianluigi Zullo, Damiano Altieri, Roberta Cimmino <i>Preliminary investigations on functional longevity in Italian Mediterranean Buffaloes (<i>Bubalus bubalis</i>)</i>	O050

Wednesday, September 22nd - Room Petrarca

SESSION 11 - Genomic and phenomic tools to improve livestock animals - II

Chairs:	Roberto Mantovani, Riccardo Bozzi	
14.30-14.45	<u>Samuele Fontanesi</u> , Giuseppina Schiavo, Mohamad Ballan, Matteo Bolner, Luca Fontanesi <i>Mining livestock genomes for a One Health perspective in the management of animal genetic resources</i>	O051
14.45-15.00	<u>Lucio Flavio Macedo Mota</u> , Gota Morota, Francisco Peñagaricano, Alessio Cecchinato <i>Machine learning and variable selection methods for Fourier transform infrared prediction in Holstein cattle</i>	O052
15.00-15.15	<u>Fabio Correddu</u> , Giustino Gaspa, Nicolò P.P. Macciotta <i>Non coagulating sheep milk characterization through Fourier-Transform IR spectroscopy</i>	O053
15.15-15.30	<u>Sara Faggion</u> , Massimiliano Babbucci, Giulia Dalla Rovere, Rafaella Franch, Matteo Freguglia, Luca Bargelloni, Daniela Bertotto <i>Genomic prediction of VNN resistance, body weight, cortisol concentration and antibody titer in European sea bass (<i>Dicentrarchus labrax L.</i>)</i>	O054
15.30-15.45	<u>Valentina Bonfatti</u> , Elena Boschi, Paolo Carnier <i>Genomic prediction of dry-cured ham weight loss in Italian heavy pigs</i>	O055

Wednesday, September 22nd - Room Elena Cornaro Piscopia

SESSION 12 - Food production and processing

Chairs:	Marcello Mele, Andrea Summer	
14.00-14.15	<u>Giulia Baldi</u> , Fabio D'Elia, Urszula Tylewicz, Massimiliano Petracci <i>Innovative approach for the tenderization of Wooden Breast meat in broilers</i>	O056
14.15-14.30	<u>Simone Mancini</u> , Simona Mattioli, Alice Cartoni Mancinelli, Roberta Nuvoloni, Gisella Paci <i>Effects of rosemary powder and salt additions in goose meat burgers</i>	O057
14.30-14.45	<u>Roxana Elena Amarie</u> , Sara Tinagli, Laura Casarosa, Giulia Foggi, Monica Tognocchi, Andrea Serra <i>Effects of cooking with Superheated Steam on organic Maremmana breed beef</i>	O058
14.45-15.00	<u>Isaac Hyeladi Malgwi</u> , Paolo Carnier, Celio Paolo Sasso, Veronika Halas, Stefano Schiavon <i>Innovative feeding strategies for the heavy pig: effects on technological and quality traits of dry-cured hams</i>	O059
15.00-15.15	<u>Giorgia Stocco</u> , Michele Pazzola, Maria Luisa Dettori, Andrea Summer, Giuseppe Massimo Vacca <i>Goat milk-based predictive formulas for different measures of cheese yield</i>	O060
15.15-15.30	<u>Giulia Grassi</u> , Amalia Simonetti, Emilio Gambacorta, Annamaria Perna <i>Effect of species on oxidative stability of ozone treated milk cream</i>	O061

Thursday, September 23rd - Room Galileo

SESSION 13 - Monitoring and mitigating impacts on environment - I

Chairs:	Umberto Bernabucci, Anna Sandrucci	
09.00-09.15	<u>Sara Carè</u> , Giacomo Pirlo, Luciano Migliorati <i>Environmental impact of Italian beef suckler to finish system</i>	O062
09.15-09.30	<u>Marco Berton</u> , Stefano Schiavon, Luigi Gallo <i>Polluting compounds in Po Valley dairy system: amount, variation and some determinants in Veneto region farms</i>	O063
09.30-09.45	<u>Gustavo Javier Martínez Marín</u> , Giovanni Bittante, Hugo Toledo-Alvarado <i>Effect of breed, farm intensiveness and cow productivity on predicted enteric methane emissions predicted at the population level</i>	O064
09.45-10.00	<u>Andrea Vitali</u> , Giampiero Grossi, Nicola Lacetera <i>Effect of summer cooling of dairy cows on carbon and water footprint intensity of milk</i>	O065

- 10.00-10.15 Giulia Gislon, Ernesto Tabacco, Maria Teresa Pacchioli, Alberto Tamburini, Anna Sandrucci
Farm level mitigation strategies to improve sustainability of milk production: effects on GHG emissions..... **O066**
- 10.15-10.30 Valentina Ferrari, Maurizio Marusi, Martino Cassandro
A tool to efficiently replace dairy heifers using genomic information **O067**

Thursday, September 23rd - Room Giotto

SESSION 14 - Breeding strategies to improve animal health, welfare and resilience

- Chairs: Fabio Pilla, Valentina Bonfatti
- 09.00-09.15 Giustino Gaspa, Roberto Steri, Lorenzo Degano, Daniele Vicario
Lifetime profitability assessed through multivariate health index measured on primiparous Italian Simmental cows **O068**
- 09.15-09.30 Angela Costa, Marco Franzoi, Arianna Goi, Giulio Visentin, Massimo De Marchi
Genetic aspects of immunoglobulins G concentration measured with gold standard and predicted from infrared spectra in bovine colostrum..... **O069**
- 09.30-09.45 Raffaella Finocchiaro, Jan-Thijs van Kaam, Valentina Ferrari
Genetic Modelling of Heat Stress in Italian Holstein cows **O070**
- 09.45-10.00 Anna Fabris, Mauro Penasa, Tania Bobbo
Implementation of SCC breeding values in Italian Jersey breed **O071**
- 10.00-10.15 Giulio Visentin, Giovanni Buonaiuto, Angela Costa, Yari Vecchio, Ferdinando Galluzzo, Maurizio Marusi
Development of a selection index for resistance to subclinical ketosis in Holstein Friesian dairy cows **O072**
- 10.15-10.30 Matilde Maria Passamonti, Mario Barbato, Johanna Ramirez-Diaz, Michele Premi, Alessandra Stella, John Lewis Williams, Paolo Ajmone-Marsan
Can SNPs associated to the variation of stress biomarkers be used for the selection of stress resilient dairy cows? **O073**

Thursday, September 23rd - Room Petrarca

SESSION 15 - Feed efficiency and growth performance - I

- Chairs: Erminio Trevisi, Severino Segato
- 08.30-08.45 Vincenzo Lopreiato, Giulia Ferronato, Giorgia Lovotti, Erminio Trevisi
Residual feed intake and its association with growth performance and blood metabolic profile in preweaning Simmental calves **O074**
- 08.45-09.00 Alberto Romanzin, Lorenzo Degano, Daniele Vicario, Mauro Spanghero
Residual feed intake of Italian Simmental bulls in performance test **O075**
- 09.00-09.15 Ilaria Biasato, Giulia Chemello, Ilario Ferrocino, Christian Caimi, Aman Paul, Monika Dalim, Michel van Spankeren, Maria Teresa Capucchio, Elena Colombino, Luca Cocolin, Francesco Gai, Achille Schiavone, Laura Gasco
Growth performance and gut health of rainbow trout fed commercial diets containing black soldier fly larva meal **O076**
- 09.15-09.30 Matteo Daghigho, Francesca Ciucci, Carlo Viti, Breanne M. McAmmond, Jonathan D. Van Hamme, Federica Mannelli, Federica Scicutella, Arianna Buccioni
Rumen microbiota and growth performance in Aubrac and Maremmana steers reared in pasture and in feedlot **O077**
- 09.30-09.45 Alice Luciano, Marco Tretola, Michele Manoni, Nicoletta Rovere, Sharon Mazzoleni, Francesca Fumagalli, Luciano Pinotti
Effect of salty or sweet food leftover-based diets on growth performance and digestibility in piglets **O078**

Thursday, September 23rd - Room Elena Cornaro Piscopia

SESSION 16 - Food sensory quality, labelling and valorization

- Chairs: Massimo Malacarne, Adriana Bonanno
- 09.00-09.15 Ambra Rita Di Rosa, Marianna Oteri, Vittorio Lo Presti, Chiofalo Biagina
Feed Insects For Aquaculture. Use of Hermetia illucens L. meal for Sparus aurata L.: Emerging trends of advanced sensor-based instruments (E-eye, E-nose, E-tongue) for fish quality..... **O079**
- 09.15-09.30 Federico Nassivera, Emilio Tibaldi, Rodolfo Ballestrazzi, Luca Iseppi
To eat or not to eat: consumer behavior towards sustainable fish..... **O080**
- 09.30-09.45 Pier Paolo Danieli, Lorenzo Romagnoli, Andrea Amici, Bruno Ronchi, Giuseppe Russo, Riccardo Primi, Marco Lauteri
Effects of diets with different protein sources on carbon and nitrogen isotopic signatures in Hermetia illucens: potential zootechnical implications and traceability of insect meals..... **O081**
- 09.45-10.00 Aristide Maggiolino, Giovanna Calzaretto, Maria Federica Sgarro, Gerardo Centoducati, Francesco Giannico, Andrea Bragaglio
Dry vs Vacuum aging in horse meat: oxidative stability and volatolomic profile..... **O082**
- 10.00-10.15 Silvia Parrini, Francesco Sirtori, Alessandro Crovetto, Maria Chiara Fabbri, Riccardo Bozzi
Potential use of near infrared spectra from meat and fat samples for the identification of autochthonous pig breeds..... **O083**
- 10.15-10.30 Ilaria Lanza, Andrea Massaro, Alessandra Tata, Alessandro Negro, Marco Bragolusi, Roberto Piro, Lorenzo Serva, Barbara Contiero, Severino Segato
High-alpine forage milk characterization by DART-HRMS signatures..... **O084**

Thursday, September 23rd - Room Galileo

SESSION 17 - Monitoring and mitigating impacts on environment - II

- Chairs: Mauro Spanghero, Stefano Schiavon
- 11.30-11.45 Anna Simonetto, Davide Gibin, Barbara Zanini, Valentina Caprarulo, Gianni Gilioli
A general framework for the assessment of environmental impact of food: an application to six healthy dietary patterns..... **O085**
- 11.45-12.00 Franco Tagliapietra, Sara Pontini
Comparison of different models to predict methane emission from milk fatty acids in dairy cows..... **O086**
- 12.00-12.15 Matteo Braidot, Alessandro Lotto, Nicola Martinelli, Chiara Sarnataro, Carla Fabro, Mauro Spanghero
Kinetics of rumen methane production in in vitro system..... **O087**
- 12.15-12.30 Mondina Francesca Lunesu, Paola Sau, Fabio Correddu
Carbon footprint of fully and partially indoor dairy goat farming systems in Sardinia: a comparison between IPCC 2006 and IPCC 2019 prediction methods..... **O088**

Thursday, September 23rd - Room Giotto

SESSION 18 - Behaviour and welfare

- Chairs: Marta Brscic, Fabio Napolitano
- 11.00-11.15 Laura Menchetti, Martina Zappaterra, Dabide Monaco, Leonardo Nanni Costa, Barbara Padalino
An innovative tool for assessing welfare of camels..... **O089**
- 11.15-11.30 Alberto Cesarani, Giuseppe Pulina
Farm animals are long away from natural behavior: genetic and technical perspectives to improve welfare..... **O090**
- 11.30-11.45 Stefania Celozzi, Monica Battini, Federica Manila Soli, Silvana Mattiello
Measuring feeding synchronization for welfare assessment in dairy farms..... **O091**
- 11.45-12.00 Mauro Giammarino, Silvana Mattiello, Monica Battini, Piero Quatto, Luca Maria Battaglini, Ana Lopes Vieira, George Stilwell, Manuela Renna
Evaluation of inter-observer reliability of animal welfare indicators: which is the best index to use?..... **O092**

- 12.00-12.15 Maria Costanza Galli, Annalisa Scollo, Barbara Contiero, Isabella Lora, Flaviana Gottardo
Alternative farrowing systems for sows can affect litters performance? **O093**
- 12.15-12.30 Fabrizio Pirrone, Cristina Zomeño, Francesco Bordignon, Angela Trocino
Hopping displacements of rabbit does kept in a collective housing system **O094**

Thursday, September 23rd - Room Petrarca

SESSION 19 - Feed efficiency and growth performance - II

- Chairs: Paolo Boni, Antonello Cannas
- 11.00-11.15 Matteo Dell'Anno, Carlotta Giromini, Serena Reggi, Tamil Selvi Sundaram, Simona Coranelli, Ambra Spalletta, Luciana Rossi
Evaluation of Lactobacillus plantarum and Lactobacillus reuteri as feed additives for swine **O095**
- 11.15-11.30 Marco Zampiga, Giorgio Brugaletta, Stefano Pignata, Federico Sirri
Effects of dietary metabolizable energy content on productive performance of turkeys **O096**
- 11.30-11.45 Marco Birolo, Anton Pascual Guzman, Giulio Pillan, Fabrizio Pirrone, Andrea Zuffellato, Gerolamo Xiccato
Effect of genotype and feeding plan on growth performance, slaughter results and meat quality of growing rabbits **O097**
- 11.45-12.00 Damiano Cavallini, Alessandro Concolino, Emanuela Valle, Luca Campidonico, Isa Fusaro, Ludovica Mammi, Andrea Formigoni
Effects of different lipid sources and tannins on performances of high producing dairy cows **O098**
- 12.00-12.15 Federico Moroni, Simona Rimoldi, Fabio Brambilla, Genciana Terova
Evaluation of lactic acid bacteria as probiotics for gilthead sea bream (Sparus aurata): effects on growth and intestinal morphology, transcriptional response, and microbiota **O099**
- 12.15-12.30 Paolo Bani, Andrea Fiorini, Fiorenzo Piccioli-Cappelli, Olga Gachiuta
Effects of ensiling treatments on the fermentation profile of pulp and stem fractions after green biorefining of alfalfa **O100**

Thursday, September 23rd - Room Elena Cornaro Piscopia

SESSION 20 - Feed effects on nutritional profile animal products - I

- Chairs: Serena Calabrò, Marco Cullere
- 11.00-11.15 Camilla Pomente, Ruggiero Menci, Bernardo Valenti, Gianluca Veneziani, Mariano Pauselli, Luciano Morbidini
Dietary olive pomace: effects on meat and back-fat quality traits in heavy pigs **O101**
- 11.15-11.30 Giuseppe Conte, Eleonora Longo, Sara Tinagli, Roxana Elena Amarie, Monica Tognocchi
Linseed supplementation in the diet of fattening pigs: effect on the fatty acid profile of different meat cuts **O102**
- 11.30-11.45 Lina Fernanda Pulido Rodriguez, Giulia Secci, Francesco Gai, Giulia Maricchiolo, Giuliana Parisi
Effect of dietary Hermetia illucens larvae meal on triglyceride composition of sea bream fillets **O103**
- 11.45-12.00 Giulia Secci, Lina Fernanda Pulido Rodriguez, Adja Cristina Lira de Medeiros, Giuliana Parisi
Alternative protein sources in aquafeeds for rainbow trout: overview on fillet quality modifications.. **O104**
- 12.00-12.15 Nadia Piscopo, Domenico Rufrano, Roberta Matera, Carmelina Lovallo, Salvatore Claps, Lucia Sepe, Angela Salzano
Productive performance and meat characteristics of kids fed anthocyanes **O105**
- 12.15-12.30 Simona Mattioli, Elisa Angelucci, Claudia Ciarelli, Alessandro Dal Bosco, Cesare Castellini
Effect of dietary alpha-linolenic acid on meat quality of Italian poultry breed and crossbreed **O106**

Thursday, September 23rd - Room Galileo

SESSION 21 - Precision livestock farming - I

- Chairs: Giorgio Marchesini, Fabio Abeni
- 14.30-14.45 Maddalena Zucali, Giulia Gislou, Milena Brasca, Serena Bonizzi, Luciana Bava, Stefano Morandi, Anna Sandrucci
Pre-weaned dairy calf housing: preliminary results on microbial air contamination **O107**

14.45-15.00	<u>Giorgio Marchesini</u> , Paolo Balasso, Nicola Ughelini <i>The left side flank as source of information for animal behaviour and welfare in dairy cow</i>	O108
15.00-15.15	<u>Colomba Sermoneta</u> , Andrea Serra, Gianluca Brunori <i>The livestock sector digitalization: indicators on livestock's farming digital performance</i>	O109
15.15-15.30	<u>Giulia Ferronato</u> , Michele Premi, Andrea Minuti, Olga Gachiuta, Paolo Bani <i>Near-Infrared Spectroscopy for the prediction of plasma parameters for Liver Functionality Index in dairy cows</i>	O110

Thursday, September 23rd - Room Giotto

SESSION 22 - Free Communications

Chairs:	Massimo De Marchi, Gianni Battacone	
14.00-14.15	<u>Carmine Versace</u> , Jiang-Hua Shang, Ling-Yu Li, Angela Perucatti, Liliana Di Stasio, Alfredo Pauciuolo <i>Aneuploidy detection in Murrah buffalo MII oocytes by tri-colour FISH</i>	O111
14.15-14.30	<u>Luca Ferrari</u> , Matteo Ottoboni, Francesco Defilippo, Paolo Bonilauri, Robin Ørnsrud, Luciano Pinotti <i>Hermetia illucens reared on selenium enriched substrates for designing fortified insect meal</i>	O112
14.30-14.45	Matteo Santinello, <u>Alessia Diana</u> , Federico Scali, Giovanni Loris Alborali, Luigi Bertocchi, Valentina Lorenzi, Massimo De Marchi <i>Management strategies reduce antimicrobial use in Italian beef farms</i>	O113
14.45-15.00	<u>Matteo Santinello</u> , Alessia Diana, Federico Scali, Giovanni Loris Alborali, Luigi Bertocchi, Mauro Penasa <i>Effect of mixing animals in France on the use of antimicrobials in Italian beef fattening farms</i>	O114
15.00-15.15	<u>Maria Rita Mellino</u> , Federico Correa, Catherine Ollagnier, Giuseppe Bee, Gianni Battacone <i>Response of weaned piglet's gut microbiota to the dietary inclusion of different doses of extracted olive oil wastewater</i>	O115
15.15-15.30	<u>Riccardo Negrini</u> <i>LEO project: developing a national open data repository to support livestock biodiversity, health, sustainability, and welfare</i>	O116

Thursday, September 23rd - Room Petrarca

SESSION 23 - Genomics of local breeds

Chairs:	Baldassare Portolano, Emiliano Lasagna	
14.30-14.45	<u>Gabriele Senczuk</u> , Slim Ben-Jemaa, Fabio Pilla, Johannes A. Lenstra, Meng-Hua Li, Elena Ciani <i>Genome-wide diversity of African and Eurasian fat-tailed sheep</i>	O117
14.45-15.00	<u>Beniamino Tuliozi</u> , Enrico Mancin, Roberto Mantovani, Alessandro Bagnato, Maria Giuseppina Strillacci, Mario Vevey, Cristina Sartori <i>GWAS of fitness and productive traits in the local Valdostana breeds</i>	O118
15.00-15.15	Slim Ben-Jemaa, Roberta Ciampolini, Gennaro Catillo, Mekki Boussaha, <u>Salvatore Mastrangelo</u> <i>Genome-wide search of distinctiveness selection signatures in Maremmana cattle compared to Italian Podolian-derived breeds</i>	O119
15.15-15.30	<u>Marco Tolone</u> , Domenico Giosa, Rosalia Di Gerlando, Anna Maria Sutera, Angelo Moscarelli, Ilaria Rizzuto, Baldassare Portolano, Salvatore Mastrangelo <i>Whole-genome resequencing reveals specific genomic variants in Italian insular sheep breeds</i>	O120

Thursday, September 23rd - Room Elena Cornaro Piscopia

SESSION 24 - Feed effects on nutritional profile of animal products - II

Chairs:	Antonella Baldi, Ludovica Mammi	
14.00-14.15	<u>Federica Mannelli</u> , Matteo Daghigh, Roberta Pastorelli, Carlo Viti, Maria Alexandra Cucu, Luca Turini, Federica Scicutella, Arianna Buccioni <i>Milk nutritional quality and rumen microbial community of Holstein-Friesian cows fed a diet supplemented with olive oil pomace</i>	O121

- 14.15-14.30 Giorgia Secchi, Nicolò Amalfitano, Iliara Carafa, Kieran Michael Tuohy, Elena Franciosi, Giovanni Bittante
Metagenomics of milk before, during and after summer transhumance to highland pasture in relation to human health and cheese making properties..... **O122**
- 14.30-14.45 Antonino Di Grigoli, Marialetizia Ponte, Riccardo Gannuscio, Margherita Addis, Marco Alabiso, Giuseppe Maniaci, Monica Bacchi, Massimo Todaro, Adriana Bonanno
Dehydrated sulla forage in dairy ewes feeding: effects on cheese properties **O123**
- 14.45-15.00 Elisabetta Bacchin, Nadia Guzzo, Lucia Bailoni
Use of different levels of hemp meal supplementation in diets of veal calves: effects on in vivo performances and metabolic profile..... **O124**
- 15.00-15.15 Mengjun Wu, Siria Tavaniello, Sanije Zejnelhoxha, Antonella Fatica, Marisa Palazzo, Elisabetta Salimei, Giuseppe Maiorano
Effect of genotype and diet on carcass and meat quality traits of broiler chickens..... **O125**
- 15.15-15.30 Silvia Carta, Eleni Tsiplakou, Anna Nudda
Novel by-products in goat nutrition: effect on milk yield and composition..... **O126**

Thursday, September 23rd - Room Galileo

SESSION 25 - Precision livestock farming - II

- Chairs: Paolo Berzaghi, Pasquale De Palo
- 16.00-16.15 Lorenzo Serva, Giacomo Bison, Mattia Zago, Giorgio Marchesini, Iginò Andrighetto
Use of a portable NIR instrument as a rapid tool for cattle feeding control **O127**
- 16.15-16.30 David Meo Zilio, Miriam Iacurto, Francesco Cenci, Roberto Steri
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- 16.30-16.45 Pier Paolo Danieli, Giuseppe Bianchi, Marco Maerini, Gabriele Locci, Filippo Lazzari, Gianluca Piovesan
Precision livestock farming and beekeeping: development and testing of a prototypal smart hive..... **O129**

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SESSION 26 - Omics technologies - I

- Chairs: Giuseppe Conte, Sara Pegolo
- 16.00-16.15 Barbara Lazzari, Gianluigi Paolillo, Maria Grazia De Iorio, Rita Rizzi, Gustavo Gandini, Giulietta Minozzi
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- 16.15-16.30 Martina Zappaterra, Paolo Zambonelli, Anna Maria Belmonte, Giovanna Minelli, Domenico Pietro Lo Fiego
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- 16.30-16.45 Martina Bordini, Francesca Soglia, Adele Meluzzi, Roberta Davoli
Weighted Gene Co-Expression Network Analysis identifies the main gene networks and biological pathways associated to chicken Pectoralis major myopathies..... **O132**

Thursday, September 23rd - Room Petrarca

SESSION 27 - Quantitative approaches, inbreeding and crossbreeding - I

- Chairs: Mauro Penasa, Giustino Gaspa
- 16.00-16.15 Ferdinando Galluzzo, Raffaella Finocchiaro
Variance components estimation for milkability in Italian Holstein breed..... **O133**
- 16.15-16.30 Roberta Cimmino, Dario Rossi, Gianluigi Zullo, Damiano Altieri, Yuri Gombia, Rossella Di Palo, Mayra Gomez Carpio
The relationship between somatic cell score and udder type traits in Italian Mediterranean Buffaloes (Bubalus bubalis) **O134**

- 16.30-16.45 Martina Piazza, Luigi Gallo
Carcass value of purebred Holstein and crossbred cull cows from a 3 breed rotational scheme involving Viking Red, Montbéliarde, and Holstein bulls **O135**
- 16.45-17.00 Francesca Soglia, Martina Bordini, Mattia Di Nunzio, Giulia Lattanzio, Adele Meluzzi, Maurizio Mazzoni, Massimiliano Petracchi
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Thursday, September 23rd - Room Elena Cornaro Piscopia

SESSION 28 –

This is a free session dedicated to short meetings of the ASPA councils, study commissions' encounters, and free meetings left for ASPA members.

Friday, September 24th - Room Galileo

SESSION 29 - Animal efficiency - I

- Chairs: Franco Tagliapietra, Antonio Gallo
- 09.00-09.15 Luisa Magrin, Flaviana Gottardo, Chiara Mondin, Paola Prevedello, Samuele Trestini
Technical-economic analysis of ventilation systems used to mitigate heat stress in dairy cows..... **O137**
- 09.15-09.30 Marica Simoni, Rosario Pitimo, Elisa Battaglia, Annamaria Paolino, Afro Quarantelli, Federico Righi
Assessment of ruminal and fecal microbial biomass and protein content and their relationship with the digestion indicators..... **O138**
- 09.30-09.45 Dimitrios Sioutas, Antonio Mazza, Beatrice Pileri, Alessandra Marzano, Antonello Ledda, Antonello Cannas
Growth curve characteristics of dairy ewe-lambs of the Sarda breed from birth until start of mating age **O139**
- 09.45-10.00 Valentina Caprarulo, Monika Hejna, Serena Reggi, Lauretta Turin, Antonella Baldi, Luciana Rossi
Evaluation of phytochemical dietary supplements on O138 E. coli challenged piglets **O140**
- 10.00-10.15 Chiara Aquilani, Lapo Nannucci, Martina Benedetti, Andrea Confessore, Silvia Parrini, Francesco Sirtori, Oreste Franci, Rosamaria Smaldone, Ilaria Paladini, Carolina Pugliese
Use of zeolite as zinc oxide replacement to control diarrhea in weaned pigs (from 8 to 20 kg): preliminary results on growth and microbiological profile of feces..... **O141**
- 10.15-10.30 Alessia Tondo, Israel Flamenbaum, Mauro Fioretti, Lorenzo Pascarella
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Friday, September 24th - Room Giotto

SESSION 30 - Omics technologies - II

- Chairs: Alessia Cecchinato, Francesca Ciotola
- 09.00-09.15 Katia Cappelli, Gianpiero Marconi, Samanta Mecocci, Giorgia Mazza, Andrea Giontella, Emidio Albertini, Stefano Capomaccio
Epigenetic modifications in sports horses during training: analysis of genome-wide methylation as an adaptation phenomenon..... **O143**
- 09.15-09.30 Samanta Mecocci, Stefano Capomaccio, Daniele Pietrucci, Katia Cappelli
OMIC characterization of cow, donkey and goat milk extracellular vesicles reveals their anti-inflammatory and immune-modulatory potential..... **O144**
- 09.30-09.45 Paolo Zambonelli, Silvia Gioiosa, Marco Milanese, Tiziana Castrignanò, Roberta Davoli
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- 09.45-10.00 Daniele Pietrucci, Daniele Alberoni, Loredana Baffoni, Diana Di Gioia, Giovanni Chillemi
Genomic and functional diversity of honey bee gut microbiota, after exposure to veterinary drugs or natural feed additives..... **O146**

- 10.00-10.15 Fabio Omodei Zorini, Matteo Dell'Anno, Georgia Pennarossa, Paola Cremonesi, Bianca Castiglioni, Filippo Biscarini, Guido Invernizzi
Rumen and hindgut microbiomes of dairy Italian Holstein Friesian heifers fed with camelina sativa cake **O147**
- 10.15-10.30 Valentino Palombo, Abdulrahman S. Alharthi, Fernanda Batistel, Mariasilvia D'Andrea, Claudia Parys, Jessie Guyader, Juan J. Loor
Adaptations in neonatal calf hepatic transcriptome in response to enhanced post-ruminal maternal supply of methionine..... **O148**

Friday, September 24th - Room Petrarca

SESSION 31 - Quantitative approaches, inbreeding and crossbreeding - II

- Chairs: Paolo Carnier, Giuseppe Campanile
- 09.00-09.15 Simone Ceccobelli, Francesco Perini, Lorenzo Rosa, Maria Federica Trombetta, Marina Pasquini
Myostatin gene affects carcass and meat quality in Marchigiana beef cattle **O149**
- 09.15-09.30 Nicolaia Iaffaldano, Giusy Rusco, Roberta Iampietro, Pier Paolo Gibertoni, Alessandra Roncarati, Michele Di Iorio
How post-collection storage time can affect the semen freezability of Mediterranean trout? **O150**
- 09.30-09.45 Hugo Toledo-Alvarado, Gustavo Javier Martínez Marín
Genetic parameters of predicted enteric methane emissions of Brown Swiss cattle at the population level in Italy..... **O151**
- 09.45-10.00 Stefano Biffani, Giulietta Minozzi, Maria Grazia Di Iorio, Giulio Pagnacco
Genetic Evaluation and Variance component estimation in an Italian honey bee population **O152**
- 10.00-10.15 Maria Chiara Fabbri, Francesco Tiezzi, Alessandro Crovetto, Riccardo Bozzi
Genetic parameters for carcass weight at different age-classes in Italian Limousine beef cattle **O153**
- 10.15-10.30 Francesca Maria Sarti, Samira Giovannini, Camillo Pieramati, Pancrazio Fresi, Silverio Grande
Merinizzata Italiana sheep breed: genetic gain after 20 years of Performance test..... **O154**

Friday, September 24th - Room Elena Cornaro Piscopia

SESSION 32 - Companion animals and society - I

- Chairs: Rebecca Ricci, Paola Crepaldi
- 09.30-09.45 Carla Giuditta Vecchiato, Carlo Pinna, Alba Gasparido, Monica Grandi, Costanza Delsante, Paola Parazza, Pietra Marco, Giacomo Biagi
Dietary supplementation with coconut oil in dogs with chronic enteropathies..... **O155**
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- 10.00-10.15 Giada Morelli, Roberta Di Maggio, Rebecca Ricci
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- 10.15-10.30 Sara Albarella, Emanuele D'Anza, Giacomo Galdiero, Alessandra Iannuzzi, Pietro Parma, Vincenzo Peretti, Francesca Ciotola
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SESSION 33 - Animal efficiency - II

- Chairs: Gerolamo Xiccato, Rodolfo Ballestrazzi
- 11.00-11.15 Giulio Pillan, Anton Pascual, Luca Carraro, Anna Concollato, Angela Trocino
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11.15-11.30	<u>Roberto Cerri</u> , Fabio Mina, Rodolfo Ballestrazzi, Antonio Jesus Vizcaino Torres, Francesca Tulli <i>In vitro protein degradability in fish: a tool to evaluate novel protein sources</i>	O160
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ASPA 24th Congress

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- Vincenzo Chiofalo, Ambra Di Rosa, Margherita Addis, Adriana Di Trana, Antonino Di Grigoli, Salvatore Claps, Giovanni Quaranta, Valeria Maria Morittu ⁽⁸⁾, Antonio Pirisi, Massimo Todaro, Giuseppe Licitra
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- Andrea Zandrini, Valentina Carta, Virginia Flippello, Laura Ragni, Elena Cosciani-Cunico, Barbara Bertasi, Niccolò Franceschi, Paolo Ajmone-Marsan, Dario De Medici, Marina Nadia Losio
Evaluation of LAMP amplification and short enrichment time for the detection of pathogens in food **P174**

and lemon extract (RLE) rich in anthocyanins. The trial was carried out on 60 Saanen kids. After colostrum administration, animals were randomly assigned to a treatment group (Group A; $n = 30$) that received RLE (90 mg/kg PV) as food oral additive, and a control group (Group B $n = 30$) that received a standard diet. Animals were weighed every two days and slaughtered at 40 days. The RLE supplementation did not influence daily weight gain, carcass measurements and incidences of different anatomical regions. On the contrary, anthocyanins administration significantly improved meat oxidative profile seven days after slaughtering, as demonstrated by the reduced levels of TBARS (0.34 ± 0.01 vs. 0.53 ± 0.01 ; $p < .01$) and hydroperoxides (0.56 ± 0.01 vs. 0.80 ± 0.01 ; $p < .01$) in Group A and Group B, respectively. Moreover, the juiciness decreased in both groups during the time ($p < .01$) and, at day 7, was significantly higher in Group RLE compared to Group CON (0.47 ± 0.01 vs. 0.40 ± 0.01 $p < .01$). No differences were observed for most of the colour parameters, except on day 7 for yellowness (1.55 ± 0.01 vs. 0.46 ± 0.01 in group A and group B, respectively; $p < .01$). There was also a lower saturated (41.75 ± 0.50 vs. 46.47 ± 0.501 ; $p < .01$) and a higher monounsaturated and polyunsaturated fatty acids concentration (43.29 ± 0.49 vs. 40.44 ± 0.49 and 15.01 ± 0.22 vs. 13.08 ± 0.22 ; $p < .01$) in group A meat, that shows also lower atherogenic (0.64 ± 0.02 vs. 0.77 ± 0.02 ; $p < .01$) and thrombogenic indexes (0.88 ± 0.02 vs. 1.05 ± 0.02 ; $p < .01$) compared to group B. In conclusion, the addition of 90 mg/kg anthocyanins to kids' diet regimen did not affect *in vivo* growth performance and meat chemical composition. However, this inclusion improved juiciness and reduces colour deterioration and cooking loss, making kids' meat more attractive to consumers at first sight. The quality of the meat was also positively influenced, due to delaying lipid oxidation and to a better fatty acid profile, resulting in healthier meat for human consumption.

considered a useful strategy to balance the n-6/n-3 ratio in human diet. Many authors demonstrated that local chicken strains efficiently desaturate the essential fatty acids (linolenic acid, ALA) into n-3 LCP (eicosapentaenoic-EPA; docosapentaenoic-DPA and docosahexaenoic-DHA acids) when they were administered with the diet. The aim of the study was to evaluate the effect of flaxseed-enriched diets on fatty acid profile of breast meat in different chicken strains, also comparing different ages. Four different strains, Robusta Maculata (RM), Bionda Piemontese (BP), RM \times Sasso (RM \times S), BP \times Sasso (BP \times S) and a commercial hybrid (Ross 308) were divided in two dietary groups (15 chickens/strains/diet/replicates): control and flax (10% of extruded flaxseed) until the reaching of the 45 (all birds), 81 (Ross) and 140 (pure strains and crossbreeds) days of age. Chickens were raised in different indoor pens and subjected to standard conditions of temperature (20–32 °C) and humidity (65–72%). The effect of age (within strain), strain, diet, and the interaction strain \times diet were evaluated with a linear model. At slaughtering, breast meat was sampled and stored for fatty acids profile evaluations (by GC-FID). Main differences were observed between dietary groups respect to the strains. The n-3 LCP content were almost double in flax groups than control, furthermore the main differences were found in BP at older age (2-fold higher value respect to that at 45 days). Both pure strains (BP and RM) and crossbreeds (BP \times S and RM \times S) showed lower proportion of ALA respect to Ross ($p < .05$); in addition, the n-3 LCP was also lower ($p = .062$). However, evaluation of the conversion of ALA into n-3 LCP (estimated as n-3 LCP/ALA) with both the dietary plan showed significantly higher value in BP and BP \times S compared to the Ross (0.30 and 0.28 vs. 0.25, respectively). Furthermore, Ross strain, probably for their higher fat deposit, efficiently stored n-3 LCP when dietary ALA was administered.

SESSION 21 – PRECISION LIVESTOCK FARMING – I

O106
Effect of dietary alpha-linolenic acid on meat quality of Italian poultry breed and crossbreed

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Humans and mammalian species are unable to synthesize enough Long-Chain Polyunsaturated fatty acids (LCP) of both n-3 and n-6 series then, they must be introduced with the diet. The health benefits of n-3 LCP and consequently the production of foods rich in n-3 PUFA is a great goal for agroindustry. Indeed, fish, which is the major source of n-3 LCP, cannot meet the worldwide demand for n-3; hence improving the n-3 LCP content of poultry meat is

O107
Pre-weaned dairy calf housing: preliminary results on microbial air contamination

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Within the dairy herds, little attention is paid to young replacement animals as calves. Most of the investments and farmers' time are absorbed by adult cows, without considering that young animals play a key role as their development affects the future of the farm. The aim of the study was to investigate calves'

management system, focusing on the microbial air contamination of the individual pens where calves are generally kept in their first weeks of life. The study involved 8 dairy farms, located in Lombardy. Microclimatic conditions and microbial air contamination were monitored using Hobo[®] data loggers and VWR[®] Microbiological Air Sampler Surface Air System[®] Super ISO. The effects of individual housing location and microclimatic parameters on microbial air contamination were tested using GLM procedure. The 8 farms involved in the study had 186 ± 145 lactating cows with individual milk production of 33 ± 1.90 kg/d; the number of calves born per year was 251 with a minimum of 55 and a maximum of 615. The total mortality rate before weaning was $12.5 \pm 9.81\%$, with a perinatal mortality of $5.43 \pm 5.65\%$ (intrapartum and within 24 h after birth) and early mortality from 24 h to weaning of $7.08 \pm 4.56\%$. The average area of the individual pens was 2.61 ± 1.48 m². Microbial contamination of air in the individual housing was: Standard Plate Count (SPC) 4.46 ± 0.46 log₁₀MPN/m³ of air; mold 3.77 ± 0.46 log₁₀MPN/m³; yeast 3.33 ± 0.77 log₁₀MPN/m³; Enterobacteriaceae 2.65 ± 0.68 log₁₀MPN/m³; *Escherichia coli* 2.14 ± 0.95 log₁₀MPN/m³. Five farms had values of SPC above the threshold of 4.18 log₁₀MPN/m³, which is indicated by Zieger (2019) as a critical value. Pens location (indoor, outdoor, etc.) influenced the air *E. coli* count while the average day temperature had an effect on yeast (2.997 vs. 3.645 , $p < .05$; for $T_{max} < 17^\circ\text{C}$ and $T_{max} > 17^\circ\text{C}$, respectively) and mold (3.551 vs. 3.969 , $p = .07$; for $T_{max} < 17^\circ\text{C}$ and $T_{max} > 17^\circ\text{C}$, respectively) presence in the air samples. In conclusion, the evaluation of microbial air contamination in calves individual pens is a little investigated interesting aspect, linked to housing design and location. The relation between airborne microbiota environmental exposure and calves' health has to be deeply investigated in order to understand how the monitoring of microbial air contamination can be effective in putting in action appropriate corrective actions for preventing health problems in calves.

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O108

The left side flank as source of information for animal behaviour and welfare in dairy cow

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The development of devices and methods able to spot changes of behaviours and physiological parameters from normality in a timely manner is one of the aims of Precision Livestock Farming. With this vision, the aim of the present study was to develop a

model to identify animals' posture and predefined behaviours (moving, feeding, resting, ruminating and standing still) from data collected by a single tri-axial accelerometer located on the left side flank of dairy cows and evaluate its accuracy and precision. This spot was chosen because in ruminants, beyond behaviour, it potentially enables also the monitoring of rumen and turaco-abdominal contractions associated with breathing and involved in both urination and defecation. Twelve Italian Red-and-White lactating dairy cows were equipped with a tri-axial accelerometer located on the left side paralumbar fossa and were observed on average for 136 ± 29 min per cow by two trained observers who continuously recorded animals' posture and behaviour as a reference. Acceleration data were grouped in time windows of 8s overlapping by 33%, for a total of 35133 rows. For each row, 32 different features were extracted and used by machine learning algorithms for the classification of posture and behaviour. To build up a predictive model, the dataset was split into training and testing datasets, characterized by 75 and 25% of the observations, respectively. Four algorithms were tested: Random Forest, K Nearest Neighbors, Extreme Boosting Algorithm (XGB) and Support Vector Machine. As regards, behaviour classification a Convolutional Neural Network model (CNN, a Deep Learning Model), made of 8 layers, was also tested. Among machine learning models XGB showed the best accuracy (0.99) and Cohen's kappa (0.99) in predicting posture, whereas Random Forest had the highest overall accuracy in predicting behaviours (0.76), showing a balanced accuracy from 0.96 for resting to 0.77 for moving. A higher rate of misclassification was found between feeding, moving and standing still. The Deep Learning model showed an overall accuracy in predicting behaviour of 0.92. Overall, the application of a single tri-axial accelerometer at the left side paralumbar fossa of mid-lactating dairy cows gave very accurate results regarding the prediction of posture and resting behaviour using machine learning models, whereas precision and accuracy for ruminating and feeding behaviours were greatly improved by the use of CNN.

O109

The livestock sector digitalization: indicators on livestock's farming digital performance

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Digitalisation plays a pivotal role in the development and modernization of livestock farming. Nowadays, the adoption of a new IT system is mandatory for the smart farm to achieve the sustainable development goals accordingly with the new EU Common