

72<sup>ND</sup> ANNUAL MEETING OF THE EUROPEAN FEDERATION OF ANIMAL SCIENCE

# SCIENTIFIC SOLUTIONS TO DIFFERENT DEMANDS ON THE LIVESTOCK SECTOR

DAVOS – SWITZERLAND

30 AUGUST – 3 SEPTEMBER 2021



EAAP 2021

# PROGRAMME EAAP 2021

Photo: Marc Kirchhofer

# Thank you to the EAAP 72<sup>nd</sup> Annual Congress Sponsors and Friends

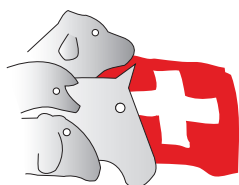
## Platinum sponsor

---



## Congress partners

---



SCHWEIZERISCHE VEREINIGUNG FÜR TIERWISSENSCHAFTEN  
Association Suisse pour les Sciences Animales  
Swiss Association for Animal Sciences



GLOBAL AGENDA FOR  
SUSTAINABLE LIVESTOCK



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Bundesamt für Landwirtschaft BLW  
Office fédéral de l'agriculture OFAG  
Ufficio federale dell'agricoltura UFAG  
Uffizi federal d'agricoltura UFAG

## Gold sponsors

---



Kanton Graubünden  
Chantun Grischun  
Cantone dei Grigioni

BRAUNVIEH 



illumina<sup>®</sup>



melior

ThermoFisher  
SCIENTIFIC

# Table of Contents

The European Federation of Animal Science (EAAP)	2
Welcome to the EAAP 2021 in Davos	3
National Organizers of the 72 <sup>nd</sup> EAAP Annual Meeting	4
Friends of EAAP	6
YoungEAAP	7
Country information Switzerland	8
Conference venue	13
Floor plans	14
Information for participants	16
General programme	19
Plenary Session (21)	20
Organization of scientific programme	21
Room overview	22
Scientific programme – Monday 30 August	26
Scientific programme – Tuesday 31 August	47
Scientific programme – Wednesday 1 September	59
Scientific programme – Thursday 2 September	82
Study commissions	99
Technical tours – Friday 3 September	102
Social events	104
Accompanying Persons Programme	105

# The European Federation of Animal Science (EAAP)

Every year, the EAAP (The European Federation of Animal Science) organizes an international meeting which attracts between 900 and 1500 people.



The main aims of the EAAP are to promote, by means of active co-operation between its members and other relevant international and national organizations, the advancement of scientific research, sustainable development and production systems; experimentation, application and extension; to improve the technical and economic conditions of the livestock sector; to promote the welfare of farm animals and the conservation of the rural environment; to control and optimise the use of natural resources in general and animal genetic resources in particular; to encourage the involvement of young scientists and technicians. More information on the organization and its activities can be found at [www.eaap.org](http://www.eaap.org).

Address: Via G. Tomassetti 3 A/1  
I-00161 Rome, Italy  
Phone: +39 06 4420 2639  
E-mail: [eaap@eaap.org](mailto:eaap@eaap.org)  
Web: <http://www.eaap.org>

## Former Presidents

1949-1961	A.M. Leroy (France)
1961-1967	R. Trehane (United Kingdom)
1967-1972	J.M. Rijssenbeek (The Netherlands)
1972-1978	J.H. Weniger (Germany)
1978-1984	E.P. Cunningham (Ireland)
1984-1990	A. Roos (Sweden)
1990-1996	A. Nardone (Italy)
1996-2000	P. Solms-Lich (Germany)
2000-2004	A. Aumaitre (France)
2004-2008	J. Flanagan (Ireland)
2008-2012	K. Sejrsen (Denmark)
2012-2016	P. Chemineau (France)
2016-2020	M. Gauly (Germany)

## Council members

### President

- Isabel Casasús (Spain)

### Vice-Presidents

- Johannes Sölkner (Austria)
- John Carty (Ireland)

### Members

- Ilan Halachmi (Israel)
- Stéphane Ingrand (France)
- Denis Kučević (Serbia)
- Martin Lidauer (Finland)
- Olga Moreira (Portugal)
- Bruno Ronchi (Italy)
- Peter Sanftleben (Germany)
- Hans Spooler (The Netherlands)

## FAO Representative

- Badi Besbes

## Auditors

- Zdravko Barac (Croatia)
- Gerry Greally (Ireland)

## Alternate Auditor

- Andreas Hofer (Switzerland)

## Secretary General

- Andrea Rosati



European Federation of Animal Science has close established links with the sister organizations American Dairy Science Association, American Society of Animal Science, Canadian Society of Animal Science and Asociación Latinoamericana de Producción Animal.

# Welcome to the EAAP 2021 in Davos



source: Davos-Tourismus

On behalf of the Swiss Organizing Committee, I'm very delighted to welcome you to the 72nd EAAP Congress in Davos from the 29th to the 3rd of September 2021. Davos is a world-famous place due to Thomas Mann's Magic Mountain, the World Economic Forum and numerous sporting events.

To say it in advance: Our choice of the location in 2016 for the 2021 congress could not have been better. Davos is an uncluttered, airy little place, but it is used to dealing with extraordinary situations. Therefore, we can guarantee our participants that your health is our top priority. We are conducting the congress onsite with the best conscience, because Davos is ideal for this.

The main theme of the 2021 meeting is «Scientific solutions to different demands on the livestock sector». The conference will cover all aspects of animal science. In addition, challenge sessions will offer the opportunity to debate societal demands on the animal sector.

The EAAP commissions have designed a very attractive program with 74 scientific sessions. As in the previous year, the poster-session will be held exclusively virtually and will cover numerous interesting topics. The Plenary Session is dedicated to the topic 'The multiple roles of livestock in sustainable development'. The scientific program will be presented in 11 parallel sessions.

Enjoy this EAAP platform for scientists, policy makers and industry representatives to acquire new knowledge and to exchange experiences about the latest research results from many areas of animal science.

This annual meeting is a unique opportunity to meet again on an international level face to face after a long break due to the pandemic, to exchange ideas, to feel comfortable among friends, to admire a unique mountain landscape, to exchange new ideas, and to develop professionally.

We are very happy that, despite the many uncertainties, our efforts in organizing EAAP 2021 were rewarded with enough registrations for on-site participation and additional 400 registrations for virtual participation.

We have planned a social program with a Swiss evening, a farewell dinner and technical tours. Due to possible restrictions because of the pandemic, we have to remain flexible until the congress starts. However, we will do our best to be able to offer you attractive social events as well.

Finally, we thank the numerous sponsors. They have remained loyal to us despite the pandemic. Without their solidarity and financial support, the event would not have been possible.

On behalf of the Swiss Organizing Committee, I wish you a good stay in Davos. We look forward to seeing you in Davos!

*Lucas Casanova*

Chairman of the Swiss Organizing Committee

# National Organizers of the

*The 72<sup>nd</sup> EAAP annual meeting is organized by the Swiss Association for Animal Sciences (SAAS) in partnership with the Federal Office for Agriculture (FOAG) and Global Agenda for Sustainable Livestock (GASL).*

## Swiss organizers

### President

- **Lucas Casanova**, Braunvieh Schweiz, Zug

### Secretariat

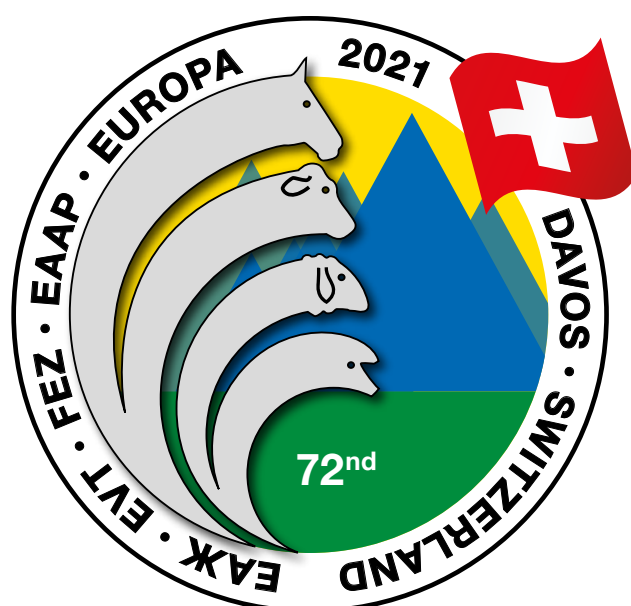
- **Beat Bapst**, Qualitas AG, Zug

### Members

- **Andreas Hofer**, SUISAG, Sempach
- **Veronika Maurer**, Research Institute of Organic Agriculture FiBL, Frick
- **Stefan Probst**, Bern University of Applied Sciences, School of Agricultural, Forest and Food Sciences BFH-HAFL, Zollikofen
- **Léonie von Tavel**, Swissgenetics, Zollikofen

### Associated member

- **Adrian Aebi**, FOAG, Bern



# 72<sup>nd</sup> EAAP Annual Meeting

## Swiss Scientific Committee

The Swiss Scientific Committee was led by

- **Veronika Maurer,**
- **Andreas Hofer and**
- **Beat Bapst**

and supported by members of

- Agroscope, Avenches and Posieux
- Bern University of Applied Sciences, School of Agricultural, Forest and Food Sciences BFH-HAFL, Zollikofen
- Centre for Proper Housing of Ruminants and Pigs ZTHT, Tänikon
- ETH Zurich
- Faculty of Veterinary Medicine (Vetsuisse Faculty) at the University of Bern
- Faculty of Veterinary Medicine (Vetsuisse Faculty) at the University of Zurich
- Qualitas AG, Zug
- Research Institute of Organic Agriculture FiBL, Frick
- SUISAG, Sempach
- Swissgenetics, Zollikofen
- Swiss Goat Breeders Association SZZV, Zollikofen



# Friends of EAAP

By creating the 'Friends of EAAP', EAAP offers the opportunity to industries to receive services from EAAP in change of a fixed sponsoring amount of support every year.

- The group of supporting industries are layered in three categories: 'silver', 'gold' and 'diamond' level.
- It is offered an important discount (one year free of charge) if the sponsoring industry will agree for a four years period.
- EAAP will offer the service to create a scientific network (with Research Institutes and Scientists) around Europe.
- Creation of a permanent Board of Industries within EAAP with the objective to inform, influence the scientific and organizational actions of EAAP, like proposing choices of the scientific sessions and invited speakers and to propose industry representatives for the Study Commissions.
- Organization of targeted workshops, proposed by industries.
- EAAP can represent and facilitate activities of the supporting industries toward international legislative and regulatory organizations.
- EAAP can facilitate the supporting industries to enter in consortia dealing with internationally supported research projects.

Furthermore EAAP offers, depending to the level of support (details on our website: [www.eaap.org](http://www.eaap.org)):

- Free entrances to the EAAP annual meeting and Gala dinner invitation.
- Free registration to journal *animal*.
- Inclusion of industry advertisement in the EAAP Newsletter, in the banner of the EAAP website, in the Book of Abstract and in the Programme Booklet of the EAAP annual meeting.
- Inclusion of industry leaflets in the annual meeting package.
- Presence of industry advertisements on the slides between presentations at selected standard sessions.
- Presence of industry logos and advertisements on the slides between presentations at the Plenary Sessions.
- Public Recognition by the EAAP President at the Plenary Opening Session of the annual meeting.
- Discounted stands at the EAAP annual meeting.
- Invitation to meetings (at every annual meeting) to discuss joint strategy EAAP/Industries with the EAAP President, Vice-President for Scientific affair, Secretary General and other selected members of the Council and of the Scientific Committee.

## Contact and further information

If the industry you represent is interested to become 'Friend of EAAP' or want to have further information please contact [jean-marc.perez0000@orange.fr](mailto:jean-marc.perez0000@orange.fr) or EAAP secretariat ([eaap@eaap.org](mailto:eaap@eaap.org), phone : +39 06 44202639).

## The Association

EAAP (The European Federation of Animal Science) organizes every year an international meeting which attracts between 900 and 1,500 people. The main aims of EAAP are to promote, by means of active co-operation between its members and other relevant international and national organizations, the advancement of scientific research, sustainable development and systems of production; experimentation, application and extension; to improve the technical and economic conditions of the livestock sector; to promote the welfare of farm animals and the conservation of the rural environment; to control and optimise the use of natural resources in general and animal genetic resources in particular; to encourage the involvement of young scientists and technicians. More information on the organization and its activities can be found at [www.eaap.org](http://www.eaap.org)



# YoungEAAP



## What is the YoungEAAP?

YoungEAAP is a group of young scientists organized under the EAAP umbrella. It aims to create a platform where scientists during their early career get the opportunity to meet and share their experiences, expectations and aspirations. This is done through activities at the Annual EAAP Meetings and social media. The large constituency and diversity of the EAAP member countries, commissions and delegates create a very important platform to stay up-to-date, close the gap between our training and the future employer expectations, while fine-tuning our skills and providing young scientists applied and industry-relevant research ideas.

### Committee Members at a glance

- Torun Wallgren (President)
- Ines Adriaens (Secretary)
- Marcin Pszczola (secretary)

YoungEAAP promotes Young and Early Career Scientists to:

- Stay up-to-date (i.e. EAAP activities, social media);
- Close the gap between our training and the future employer expectations;
- Fine-tune our skills through EAAP meetings, expand the special young scientists' sessions, and/or start online webinars/trainings with industry and academic leaders;
- Meet to network and share our graduate school or early employment experiences;
- Develop research ideas, projects and proposals.

### Who can be a Member of YoungEAAP?

All individual members of EAAP can join the YoungEAAP if they meet one of the following criteria:  
Researchers under 35 years of age OR within 10 years after PhD-graduation

Just request your membership form ([torun.wallgren@slu.se](mailto:torun.wallgren@slu.se)) and become member of this network!!!

# Country information

## Facts about Switzerland (Confoederatio helvetica)

Population	8.6 millions citizens; residents of non-Swiss nationality account for nearly 25%
Surface area	41,000 km <sup>2</sup>
Mountains	There are 208 mountains with an altitude of over 3,000 m above sea level
Capital	Berne
Languages	Switzerland has four national languages although English is increasingly popular – the four official languages are French, German, Italian and Rhaeto-Romantsch
Currency	Switzerland uses the Swiss Franc (CHF)
Politics	Switzerland is a direct democracy in which citizens can challenge any law passed by Parliament

Welcome to Switzerland!

## Switzerland in the heart of Europe

For a meeting in the heart of the continent of Europe, there's no better location than Switzerland. Sharing borders with Germany to the north, Italy to the south, France to the west and Austria and Liechtenstein to the east and links by air, rail and road with dozens more, Switzerland is open to the world. It is easy to reach, with straightforward land border crossings and international airports at Zurich, Geneva, Basel. Mountains and valleys, glaciers and forests, lakes and rivers – an amazing variety in such a small area. For an active vacation, or

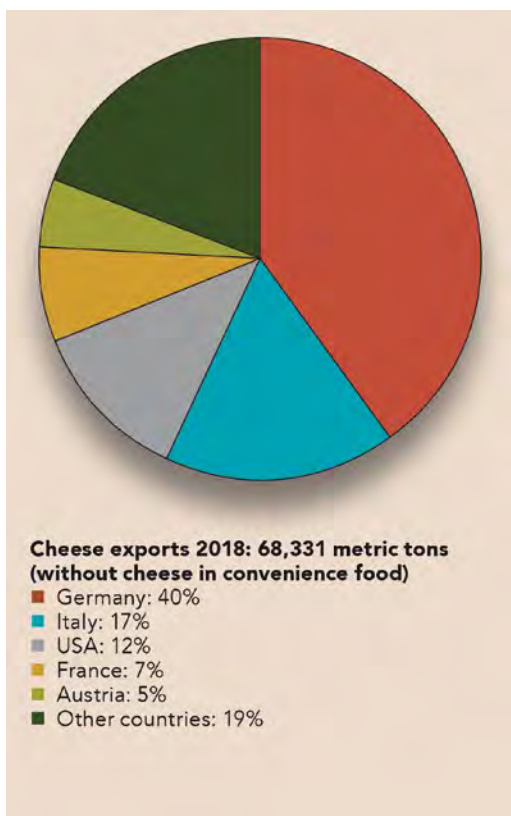
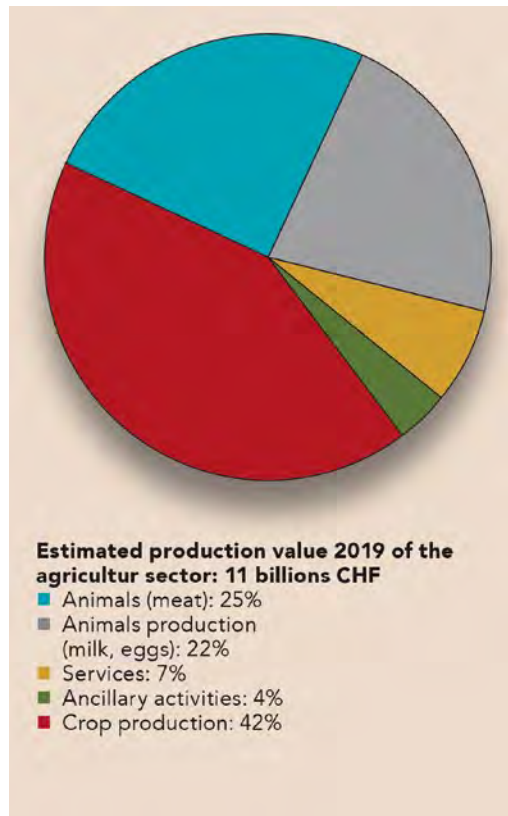
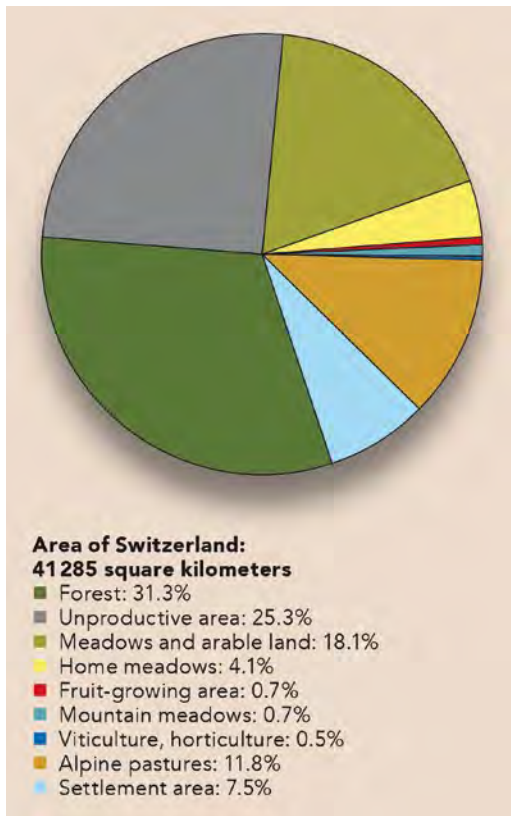
perfect relaxation, Switzerland has something for everyone. The climate and topography of Switzerland make it ideal for animal rearing and explain the rich variety of livestock breeds created in such a small area. No other country in the world has a public transport network offering such dense coverage. Trains run at regular intervals and always depart and arrive at the same minute past the hour/half hour.

- Timetable information: [www.sbb.ch](http://www.sbb.ch)



source: Marcel Giger

# Switzerland



Switzerland is famous for its cheese (Emmental and Gruyere), its chocolate (Toblerone), its watches and its financial institutions, but also for its innovative and competitive economy, particularly in the pharmaceutical and chemical industries.



## Davos

Davos is the highest town in the Alps located at about 1,500 metres above sea level. An EAAP Congress in the mountains, in the midst of nature? What a good idea, because Davos has one of the most modern congress centres in the Alps which also hosts the annual World Economic Forum (WEF).

Davos Klosters is also one of the most famous vacation destinations in the world and offers the complete range of vacation, sports and meeting facilities in the middle of the mountains.

Just imagine, you are participating in the interesting EAAP Congress yet at the same time you feel you are on vacation. The fascinating mountain nature will inspire you and unwind you automatically from your daily routine.

A wide range of sophisticated restaurants, hotels and bars invite you to linger for a while in the evenings to enjoy their diverse culinary specialities and appreciate the same warm and easy-going atmosphere they all share.

Admittedly, Davos is not exactly 'round the corner', but it can be reached in just a few hours from Zürich, Basel, Geneva, Munich, Innsbruck and Milan. Transform your journey to Davos into a real experience and travel on the Rhaetian railway high up the Prättigau or from Chur across the Landwasser Viaduct (UNESCO World Heritage Site) through the unique landscape to Davos. Once you've arrived at the top you will really think you're on vacation, but at the EAAP Congress. And everything is so close together. You won't waste any more time in Davos with long travel times and this more than makes up for the longer journey to get there.



## Did you know?

### Famous Train

With its unique mountain sections, the UNESCO World Heritage Albula/Bernina Line and famous classics such as the Glacier and Bernina Express, the Rhaetian railway has delivered first class railway experiences for over 120 years through the very heart of trilingual Grisons. And regardless of which trip you choose to take, there is always one constant - the Rhaetian railway unites the beauty of the landscape, the power of technology and the pioneering spirit of the past century. [www.rhb.ch](http://www.rhb.ch)

### Schatzalp – Venue for the Farewell Dinner

On the Schatzalp, where readers of Thomas Mann's best-selling novel will find the magic mountain, the ambience, the attitude to life amidst pure art nouveau architecture, remains as it was almost 100 years ago. The architecture of the sanatorium remains unchanged. Today the terraces are used as sunbathing spots for the hotel guests. And as anyone who has been on the Schatzalp will know, here enthroned above Davos, the area is still truly magical just like it used to be.

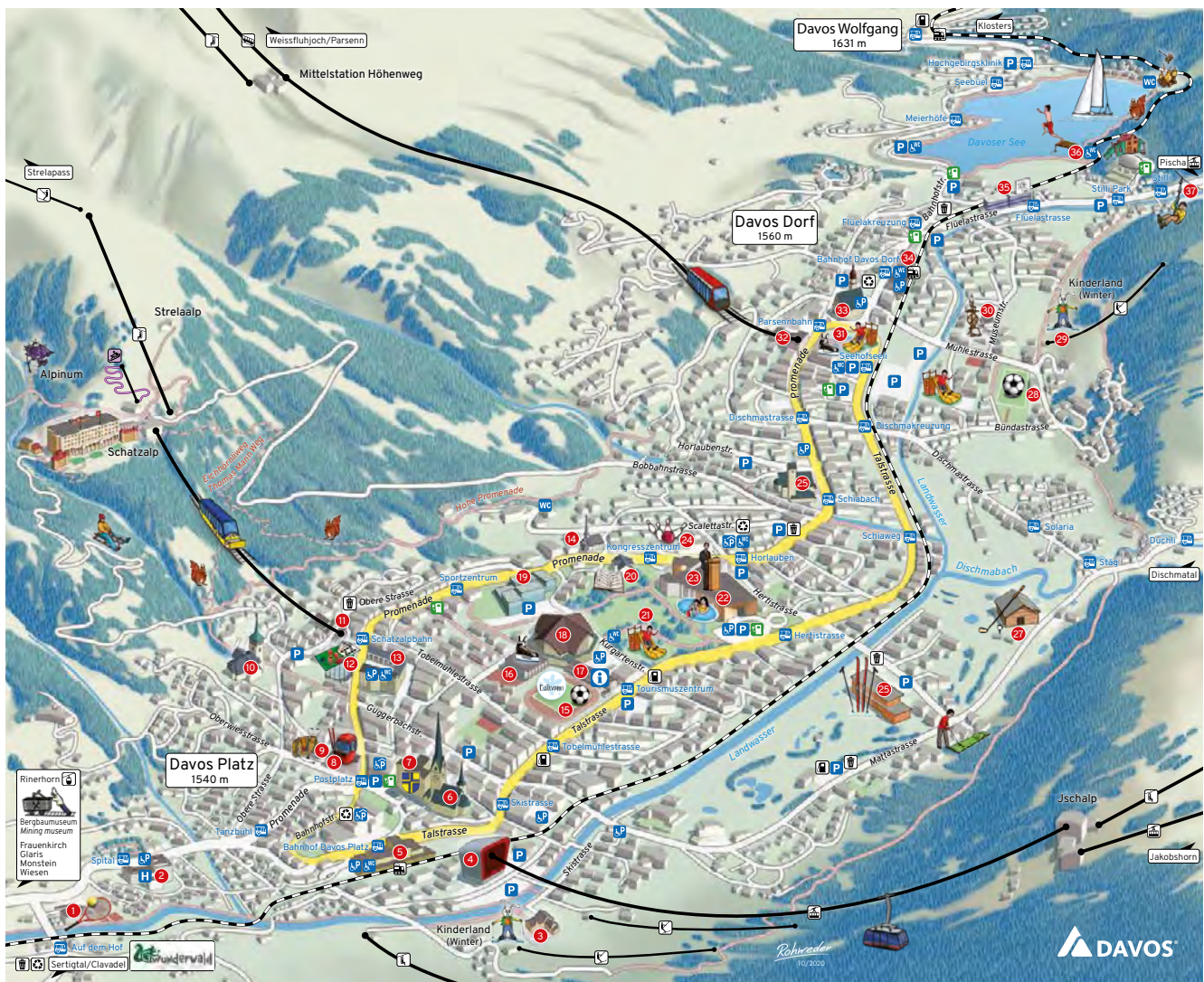


### Kirchner Museum

Most of Kirchner's artistic works are displayed in the Kirchner Museum in Davos, which was founded by the art dealer Roman Norbert Ketterer. The architecture of the Kirchner Museum in Davos aims to bring people and art together. The crystalline building constitutes the architectural counterpart to the art of Ernst Ludwig Kirchner. [www.kirchnermuseum.ch](http://www.kirchnermuseum.ch)

### Eau-là-là in the Congress Building

On the ground floor of the wellness pools guests will find an expansive water world, whilst the two upper stories house a stunning spa world. The facilities include steam baths under the enchanting starry skies, two solariums, an additional shower and cold water area and even a club room with fireplace for relaxation. The blockhouse sauna and the open-air jacuzzi with a spacious relaxation terrace complete the wellness experience. [www.eau-la-la.ch](http://www.eau-la-la.ch)



## Davos town plan

- |                                     |   |
|-------------------------------------|---|
| 1. Sports hall Färbi                | 20. Library   |
| 2. Hospital                         | 21. Resort park                                       |
| 3. Bolgen Areal                     | 22. Indoor pool/wellness «eau-là-là»                  |
| 4. Valley station Jakobshorn        | 23. Congress centre                                   |
| 5. Railway station Davos Platz      | 24. Bowling   |
| 6. Reformed church 'St. Johann'     | 25. Catholic church 'Herz-Jesu'                       |
| 7. Town hall                        | 26. Cross-country ski centre                          |
| 8. Winter sports museum             | 27. Golf course/golf club                             |
| 9. Museum of medicine               | 28. Sports ground Bünde                               |
| 10. Catholic church 'Marienkirche'  | 29. Bünde areal                                       |
| 11. Valley station Schatzalp/Strela | 30. Museum of local history                           |
| 12. Casino                          | 31. Lake Seehof                                       |
| 13. Arcade Square                   | 32. Valley station Parsenn                            |
| 14. The Church of England           | 33. Reformed church 'St. Theodul'                     |
| 15. Artificial ice rink             | 34. Railway station Davos Dorf                        |
| 16. Sports centre                   | 35. WSL Institute for Snow and Avalanche Research SLF |
| 17. Tourist office                  | 36. Lido (water sports/pedalo)                        |
| 18. Ice stadium                     | 37. Rope and Bike park                                |
| 19. Kirchner museum                 |   |

# Conference venue



source: lvt Swissgenetics

**Davos Congress**  
**Talstrasse 49a**  
**CH-7270 Davos Platz**  
**Tel. +41 81 415 21 60**  
**Fax +41 81 415 21 69**  
**[info@davoscongress.ch](mailto:info@davoscongress.ch)**

The Congress Centre Davos is located in the middle of Davos, between Davos Dorf and Davos Platz. The Main Entrance and the parking lots can be reached from the Talstrasse. The bus stops at the top (Promenade) and at the bottom (Talstrasse) in front of the Congress building which can also be easily reached on foot from many hotels. Due to the Covid protection scheme only the entrance 'Talstrasse' can be used. There are exits to 'Park', 'Promenade' and 'Promenade Nord'.

Combine your arrival in Davos with a refreshing walk in the most magnificent environment, as Davos Congress is surrounded by a park near the River Landwasser. There is also a big chargeable carpark below at the Congress.

There is something to suit every taste in close proximity that can be reached on foot. Davos, a municipal infrastructure in the middle of the mountains and with Davos Congress at its heart.



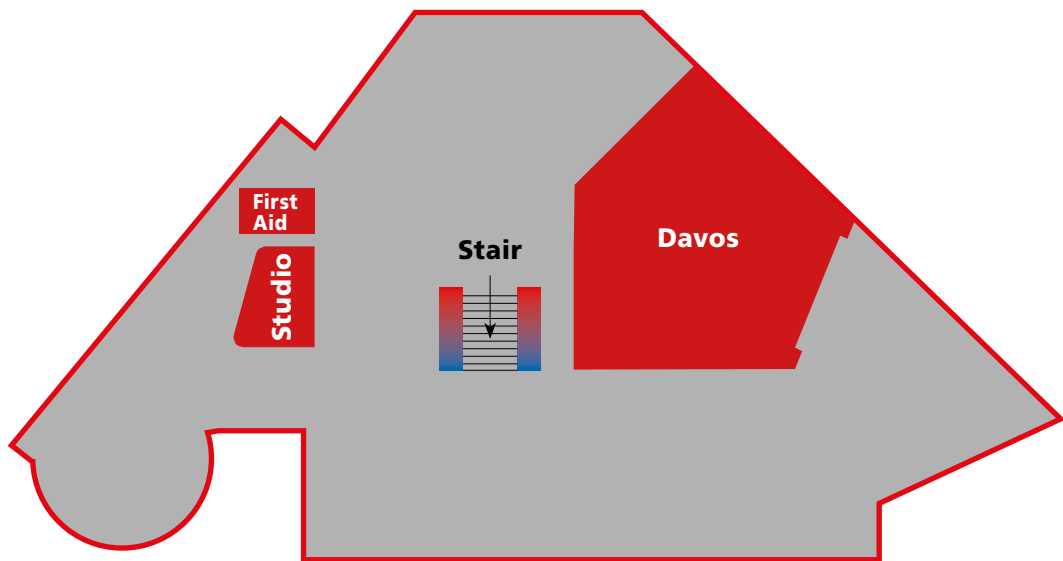
source: lvt Swissgenetics



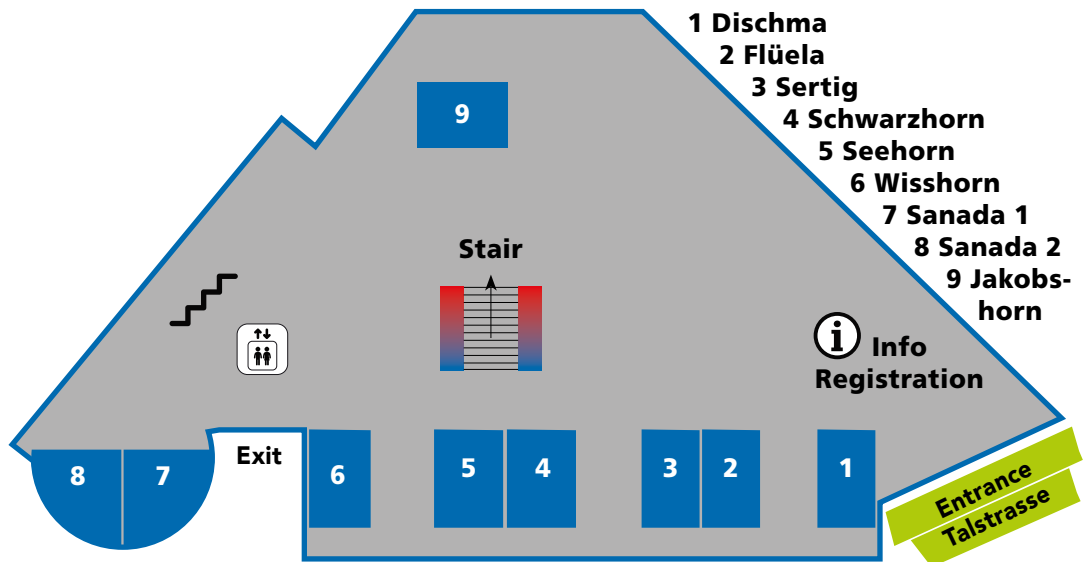
source: lvt Swissgenetics

# Floor plans

## Level -1

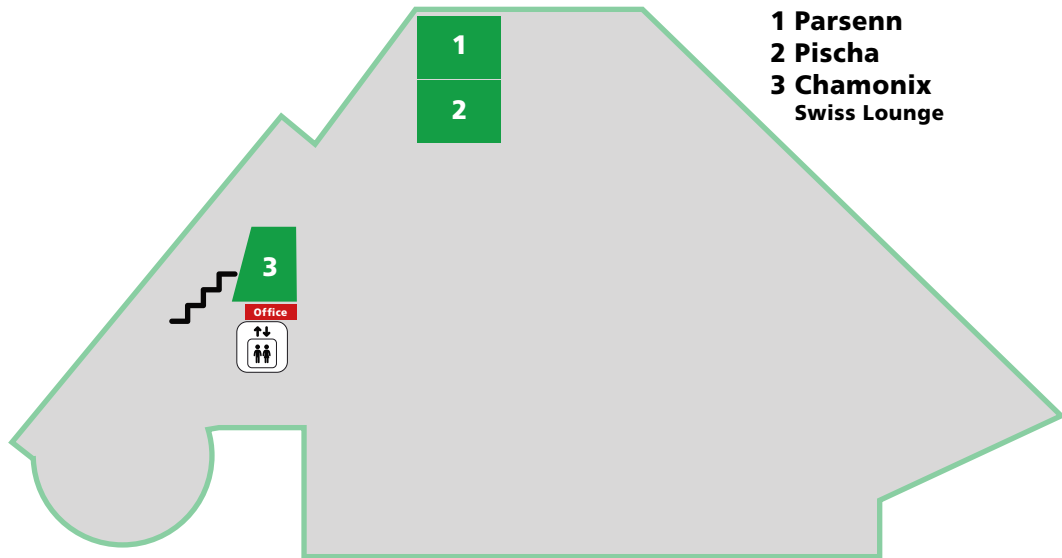


## Level 0

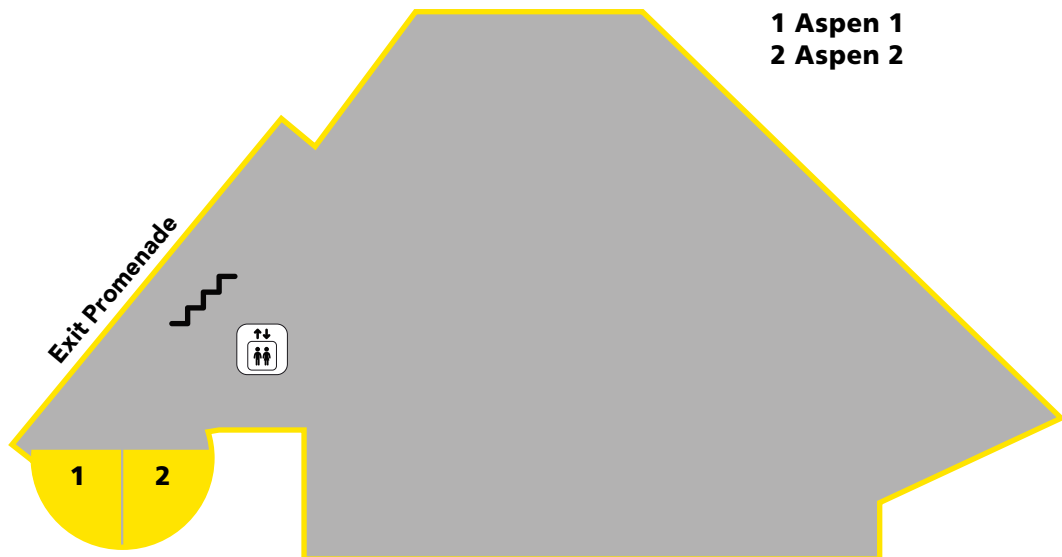




## Level 1



## Level 2

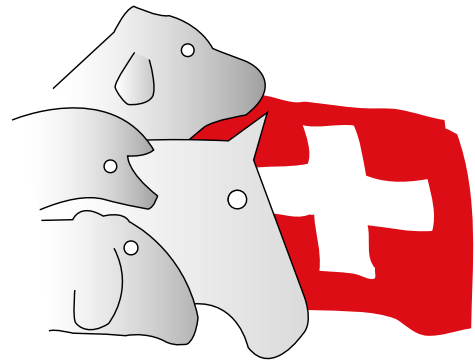


 Level 3: EAAP-Office Room 41, 43, 44

# Information for participants

**Conference website:** [www.eaap2021.org](http://www.eaap2021.org)  
**Conference email:** [info@eaap2021.org](mailto:info@eaap2021.org)

**Local organizer:**  
**Swiss Association for Animal Sciences**  
[www.svt-assa.ch](http://www.svt-assa.ch)



## Venue

Davos Congress  
Talstrasse 49a  
CH-7270 Davos Platz

## Covid information

For events like the EAAP annual meeting with possibly more than 1000 participants on site, all of them must:

- be fully vaccinated
- or have recovered from a COVID-infection within 180 days
- or have recently been tested (PCR or antigen test not older than 72 or 48 hours, respectively)

The local organizer is looking into the possibility of offering testing on site in Davos.



## Registration desk

The Registration Desk is open for participants in the main-entrance Talstrasse in Davos Congress on the following days and times:

- |                         |               |
|-------------------------|---------------|
| • Sunday August 29      | 09:00 – 19:00 |
| • Monday August 30      | 07:30 – 18:00 |
| • Tuesday August 31     | 07:30 – 18:00 |
| • Wednesday September 1 | 07:30 – 18:00 |
| • Thursday September 2  | 07:30 – 18:00 |



source: Davos-Tourismus

## Badges and identification

Upon registration, each participant will receive a name badge to be worn at all times during the conference and social events. Lost name badges can be replaced for a fee of 10 CHF.

## Message board

A message board will be near the registration desk.

## Swiss lounge

Meet Swiss Animal Scientists in the 'Swiss Lounge' in room Chamonix (Level 1)

## Smoking area

Smoking is not permitted indoors at Davos Congress. There will be a special smoking area outside the conference centre.

## Wi-Fi

Visitors to Davos Congress can use free WiFi. No login is necessary.

## Car-Parking

There is a pay car park with 250 parking spaces alongside the Congress Center.

## Time zone

The summer time zone in Switzerland is GMT + 2 hours.

## Climate

The Alpine climate can be very variable. Temperatures between 0 °C and about 25 °C are possible in Davos in August/September. Normally the temperature will be about 20 °C during the day. An umbrella might be useful as the August has the highest average rainfall.

## Currency and money exchange

The currency in Switzerland is the Swiss Franc. Most banks open at 09.00 and close around 17.00 Monday through Friday. They are generally closed for lunch between 12.00 and 14.00. Post offices are open between 09.00 and 17.00. Please, note that there will be no currency exchange facilities at the congress venue. All major credit cards are widely accepted. ATMs are available at walking distance.

## Electrical supply

Electricity is supplied at 220/230 volts, 50 Hz. Some hotels provide 110 volt AC sockets for electric razors only. Switzerland has its own plug standard Type J (three 4 mm round pins). Therefore you will need an adapter, which might be provided in most of the hotels.

## Submission of

### Power Point Presentations

Oral presenters have to upload their Powerpoint presentation(s) in the signposted area close to the registration desk at main entrance Talstrasse half a day before their presentation(s). Technicians are available to upload presentation(s) from your memory stick to the presentation system in the reception area from 12:00 to 19:00 on Sunday August 29 and during normal reception hours on Monday August 30 to Thursday September 2.

All presentations scheduled for Monday morning have to be uploaded on Sunday.

Uploading of presentations on the presentation system is mandatory and only available in the reception area. Each conference room is equipped with a projector and a connected computer. The presentation software is Microsoft PowerPoint. The use of personal computers for presentations is not allowed.

### Posters and poster sessions

Posters are online only and can be accessed via <https://www.eaap2021.org/>. All posters will be on display throughout the conference and participants can communicate with authors via chat function. Specific poster sessions are scheduled on Wednesday September 1 between 17:30 and 18:30 (Session A) and Thursday September 2 between 08:00 and 09:00 (Session B), when authors are expected to be online to discuss their posters with participants.

### Uploading presentations on the EAAP website

The Book of Abstracts containing all abstracts presented at the conference will be available on the EAAP 2021 website ([www.eaap2021.org](http://www.eaap2021.org)).

PDF files of contributions will also be available following the conference for downloading from the EAAP website ([www.eaap.org](http://www.eaap.org)). This site will enable delegates to obtain more detailed information about work being presented at the meeting. A password, given only to registered participants, will be required.

## To authors

If authors do not wish to give permission to have the pdf presentation or poster available on the EAAP website, they must inform EAAP before September 30<sup>th</sup> (after the conference) by sending an email to [eleonora@eaap.org](mailto:eleonora@eaap.org). After this date, EAAP will assume permission and include your presentation/poster on the EAAP website.

### Posters:

Only the poster (pdf) or the MP4 video uploaded in the virtual poster area will be placed on the website.

### Theatre:

Only the presentation uploaded in the Preview Room will be placed on the website.

Please do not send us any other presentation or poster by email.

EAAP will only accept presentations/posters that have been presented.

A password will be required, and this will only be communicated to registered participants and EAAP Individual Members.

### Conference App

An EAAP 2021 App will be available from <http://www.eaap2021.org> to all registered delegates before the conference. It will contain comprehensive information about the conference, venue program and abstracts.

# General programme

Day	Time	Subject
Sunday 29 August	10:00 – 17:30	Workshop 'Writing and presenting scientific papers'
	09:00 – 19:00	Registration of participants
Monday 30 August	08:00 – 12:00	Study commission sessions A*
	09:00 – 13:00	Study commission sessions B*
	12:00 – 14:00	Lunch for sessions A followed by B
	13:30 – 17:30	Study commission sessions A
	14:30 – 18:30	Study commission sessions B
	19:00 – 22:00	Opening & award ceremony, welcome reception
Tuesday 31 August	08:30 – 12:30	Plenary session and Leroy Lectures
	12:00 – 14:30	Lunch
	14:00 – 18:00	Study commission sessions A
	14:30 – 18:30	Study commission sessions B
	09:00 – 18:00	Accompanying persons: Vintage tour <a href="https://www.eaap2021.org/accompanyingtour">https://www.eaap2021.org/accompanyingtour</a>
	19:00 – 22:30	Swiss evening <a href="https://www.eaap2021.org/swiss-evening">https://www.eaap2021.org/swiss-evening</a>
Wednesday 1 September	08:00 – 12:00	Study commission sessions A
	09:00 – 13:00	Study commission sessions B
	12:00 – 14:30	Lunch for sessions A followed by B
	13:30 – 17:30	Study commission sessions A
	14:30 – 18:30	Study commission sessions B
	17:30 – 18:30	Poster Session A
	09:00 – 18:00	Accompanying persons: Engadin valley <a href="https://www.eaap2021.org/accompanyingtour">https://www.eaap2021.org/accompanyingtour</a>
	18:45 – 20:00	General assembly
Thursday 2 September	08:00 – 12:00	Study commission sessions A
	08:00 – 09:00	Poster Session B
	09:00 – 13:00	Study commission sessions B
	12:00 – 14:30	Lunch for sessions A followed by B
	13:30 – 17:30	Study commission sessions A
	14:30 – 18:30	Study commission sessions B
	19:00 – 23:00	Farewell dinner <a href="https://www.eaap2021.org/farewell-dinner">https://www.eaap2021.org/farewell-dinner</a>
Friday 3 September	07:30 – 20:00	Technical tours <a href="https://www.eaap2021.org/technical-tours">https://www.eaap2021.org/technical-tours</a> , option for drop off to airport

\* Sessions A and B with shifted timings to avoid crowds during coffee and lunch breaks

# Plenary Session (21)

<b>Tuesday 31 August 08:30 – 12:30</b>	
<b>Discovery Plenary Session (8:30 – 11:30)</b> The multiple roles of livestock in sustainable development <i>Chair: Isabel Casasús</i>	
08:30	Demands on the livestock sector – Engagement of the Swiss Government <i>Adrian Aebi</i> Federal Office for Agriculture (FOAG), Bern, Switzerland
9:00	The role of livestock production in global food security <i>Anne Mottet</i> Food and Agriculture Organization, Rome, Italy
9:30	Animal products in healthy diets <i>Frédéric Leroy</i> Vrije Universiteit Brussel, Brussels, Belgium
<b>10:00 Coffee Break</b>	
10:30	Sustainability in high producing animals <i>Jack Britt</i> North Carolina State University, Raleigh, USA
11:00	Discussion
<b>Leroy Lectures (11:30 – 12:30)</b>	
11:30	Environmental responsibility of animal production: some answers to questions from society <i>Giovanni Bittante</i> University of Padova, Legnaro, Italy
12:00	Linearity, circularity, control, and robustness in biology and livestock production systems <i>Jaap van Milgen</i> PEGASE, INRAE, Saint Gilles, France

# Organization of scientific programme

*In the 'Room Overview' section (pages 22-26) several abbreviations are shown which are to do with the organization of the various sessions. These are explained below.*

## EAAP Commissions

The Scientific Programme of the EAAP Annual Meeting is organized by the Scientific Committee of EAAP, chaired by the Vice-President for Scientific Affairs, Dr Johannes Sölkner. The Scientific Committee comprises the Presidents of the 11 Commissions (see pages 100-101) and is assisted by a Secretary, Dr Geoff Pollott.

The 11 Commissions are: Cattle (C), Genetics (G), Health and Welfare (H+W), Horse (H), Livestock Farming Systems (LFS), Nutrition (N), Physiology (Ph), Pig (P), Sheep and Goat (S+G), Insects (I) and Precision Livestock Farming (PLF).

## Type of sessions

- **Theme sessions (T)** are on key topics in animal science suggested by a Commission at its Annual Commission Meeting and consist of invited and offered papers
- **Industry sessions (I)** are led and supported by industry organizations involved with a Commission and comprise invited and offered papers
- **Free Communications (bottom-up; BU)** are sessions created from submitted abstracts and titles are announced in early April after abstracts have been received
- **Discovery sessions (D)** are invited and submitted single/multiple presentations on hot/emerging topics suggested by a Commission
- **Challenge sessions (C)** are free format (workshop, open committee, round table) to debate important issues and have no theatre paper presentations, other than an introductory talk
- **Early-career Scientist's sessions (EC)** are either competitions to identify the best presentation or topics particularly orientated towards early-career scientists
- **Project sessions (P)** are sessions based around a project which wants to share its results with the wider scientific community, often combined with submitted abstracts.
- **Working Group sessions (WG)** are the results of an EAAP working group

All sessions are open to all delegates to the Annual Meeting

# Room overview

Schedule A Room	Monday 30 August 8:00 – 12:00	Monday 30 August 13:30 – 17:30
Davos	<b>Session 1</b> Phenotypes and strategies for breeding for climate friendly and efficient animals (G; T)	<b>Session 11</b> Low carbon animal nutrition: methane emission and climate (N; T)
Aspen	<b>Session 2</b> Environmental impact on cattle genetics and breeding strategies (C; T)	<b>Session 12</b> Single-step genomic evaluation (G; B)
Schwarzhorn	<b>Session 3</b> Use of genomic data for conservation activities (G; WG)	<b>Session 13</b> A: Joining forces in the use and conservation of genetic resources (GenResBridge/G; P) B: Use of functional genome annotation in farmed animal breeding (FAANG/G; P)
Jakobshorn	<b>Session 4</b> Effects of heat stress and other environmental challenges on the physiology of livestock (Ph; T)	<b>Session 14</b> The Sm@RT and TechCare projects (PLF; P)
Forum	<b>Session 5</b> Insects as feed and bioremediation tool (I; T)	<b>Session 15</b> Methods and practices to assess and improve animal welfare (H+W; T)
Schedule B Room	Monday 30 August 9:00 – 13:00	Monday 30 August 14:30 – 18:30
Sanada	<b>Session 6</b> Sensing dynamics in livestock physiology disruption through images and other non-invasive alternatives (C/PLF/Ph; T)	<b>Session 16</b> Recent advances in omics technologies applied to small ruminants (S+G; T)
Pischa + Parsenn	<b>Session 7</b> Mixed crop/livestock systems – do they deliver more resilient food systems (LFS/ATF; C)	<b>Session 17</b> Going beyond the Feed vs Food competition: crops and animals together to address food and nutrition security (ATF/LFS; C)
Seehorn		<b>Session 18</b> Alpine, organic and grassland based cattle production (C; T)
Wisshorn	<b>Session 8</b> Development of genetic and genomic systems in equid breeding (H; T)	<b>Session 19</b> Young train – Innovative research and extension (C; EC)
Studio	<b>Session 9</b> Feeding the gut: from microbiome to models (N; T)	
Sertig	<b>Session 10</b> Early career competition: stressing innovation in pig and poultry industry (P; EC)	<b>Session 20</b> Management of the sow and her litter (P/H+W; T)
<p>Schedule A – Coffee break: 9:45 – 10:15 and 15:15 – 15:45 / Lunch break: 12:00 – 13:30            Schedule B – Coffee break 10:45 – 11:15 and 16:15 – 16:45 / Lunch break: 13:00 – 14:30            Opening &amp; award ceremony, welcome reception: 19:00 – 22:00</p>		



Schedule A Room	Tuesday 31 August 8:30 – 12:30	Tuesday 31 August 14:00 – 18:00
Davos	<b>Session 21</b> Plenary session and Leroy Lectures	<b>Session 22</b> Breeding for improved animal health, welfare and longevity I (G/H+W; T)
Aspen		<b>Session 23</b> The tortoise and the hare: finding the best balance between resilience and efficiency (GENTORE/G; P)
Schwarzhorn		<b>Session 24</b> From PLF sensor development to application in the field (PLF; P)
Jakobshorn		<b>Session 25</b> Sustainable livestock farming in mountain areas and harsh environments - challenge or opportunity? (LFS; T)
Forum		<b>Session 26</b> Regulatory framework and advances in genetics and genomics of farmed insects (I; T)
Schedule B Room	Tuesday 31 August 14:30 – 18:30	
Sanada		<b>Session 27</b> Sustainability and human health aspects of dairy and meat products and substitutes (C; ADSA)
Pischa + Parsenn		<b>Session 28</b> Evolutions and latest developments in equine production and management (H; T)
Seehorn		<b>Session 29</b> So you think your science is so great (C; T)
Wisshorn		<b>Session 30</b> Young EAAP – opportunities for early career scientists (YEAAP; EC)
Studio		<b>Session 31</b> ANIMAL NUTRITION 4.0 (N; I)
Sertig		<b>Session 32</b> Meat and fat quality in broilers and finishing pigs (P; WG)
<p>Schedule A – Coffee break: 10:00 – 10:30 and 15:45 – 16:15 / Lunch break: 12:30 – 14:00  Schedule B – Coffee break 10:00 – 10:30 and 16:15 – 16:45 / Lunch break: 12:30 – 14:30  Swiss evening: 19:00 – 22:30</p>		

Schedule A Room	Wednesday 1 September 8:00 – 12:00	Wednesday 1 September 13:30 – 17:30
Davos	<b>Session 33</b> Breeding for improved animal health, welfare and longevity: cattle II (G/H+W; T)	<b>Session 44</b> PLF methods for measuring health, welfare and caring for individual animals (PLF; T)
Aspen	<b>Session 34</b> Breeding for the future: technology finds application in new phenotypes (FABRE-TP/G; C)	<b>Session 45</b> Free communications in animal genetics (G; B)
Schwarzhorn	<b>Session 35</b> Good health of pigs and poultry: increasing robustness through feeding and management - part 1 (P/H+W; T)	<b>Session 46</b> Use of genomic information (G; B)
Jakobshorn	<b>Session 36</b> Advancing sustainable livestock systems for resilient sustainable food systems (LFS; T)	<b>Session 47</b> What levers can be activated by stakeholders to promote the livestock transition? (LFS; T)
Forum	<b>Session 37</b> Sustainability assessments of insects as food and feed in a circular economy (I; T) <b>11:00 Insect Commission Meeting</b>	<b>Session 48</b> Insects: standardisation and terminology (I; WG)
Schedule B Room	Wednesday 1 September 9:00 – 13:00	Wednesday 1 September 14:30 – 18:30
Sanada	<b>Session 38</b> Computing in PLF: cloud and edge computing and smart algorithms (PLF; T)	<b>Session 49</b> Transgenerational effect of nutrition (feeding of mother, effect on offspring) (N; T)
Pischa + Parsenn	<b>Session 39</b> Nutrient competition between production and animal health – interactions of nutrition, immunity and microbiota (Ph; T)	<b>Session 50</b> Novel developments of milk removal in conventional, automated and cow-calf contact systems (Ph; T)
Seehorn	<b>Session 40</b> Heifer growth strategies for increased productivity, longevity and reduced environmental impact (C; T)	<b>Session 51</b> Organic production of milk and meat (C; P)
Wisshorn	<b>JOINT EAAP/ADSA SESSION 'FUTURE OF HOUSING FOR CATTLE'</b>	
	<b>Session 41</b> part 1 (C/ADSA; P/Freewalk)	<b>Session 52</b> part 2 (C/ADSA; P/Freewalk)
Studio	<b>Session 42</b> Inclusive livestock nutrition: where we have a trade-off between performance, environmental sustainability and animal welfare (N; T)	<b>Session 53</b> Good health of pigs and poultry: increasing robustness through feeding and management - part 2 (P/H+W; T)
Sertig	<b>Session 43</b> Optimisation of sheep and goats production systems: strategies for sustainable and resilient agroecosystems (S+G; T)	<b>Session 54</b> Sheep and goats management and reproduction (S+G; T)
Schedule A – Coffee break: 9:45 – 10:15 and 15:15 – 15:45 / Lunch break: 12:00 – 13:30 Schedule B – Coffee break 10:45 – 11:15 and 16:15 – 16:45 / Lunch break: 13:00 – 14:30 Poster session A: 17:30 – 18:30 General assembly: 18:45 – 20:00		

Schedule A Room	Thursday 2 September 8:00 – 12:00	Thursday 2 September 13:30 – 17:30
Davos	<b>Session 55</b> Sustainable Insect Chain (H2020 SUSINCHAIN) (I; P)	<b>Session 64</b> Sustainable Insect Chain (H2020 SUSINCHAIN) (I; P)
Aspen	<b>Session 56</b> Free communications: Crossbreeding - Conservation of local breeds (G; B/WG) <b>11:00 Genetics Commission Meeting</b>	<b>Session 65</b> Contribution of animal breeding to solving societal challenges (G; C)
Schwarzhorn	<b>Session 57</b> Exploiting sequence data (G; T) <b>11:00 LFS Commission Meeting</b>	<b>Session 66</b> Interaction between host genetics and gastro-intestinal tract microbiota genetics (G; T)
Jakobshorn	<b>Session 58</b> Animal behaviour: from horses to hens (H+W/H; T) <b>11:00 H+W Commission Meeting</b>	<b>Session 67</b> Challenges and novel metrics of multi objective tools at farm/regional level (LFS; C)
Forum	<b>Session 59</b> CYBELE project on high performance computing for precision livestock farming (PLF; P) <b>11:00 PLF Commission Meeting</b>	<b>Session 68</b> PLF MIR tools to monitor cows' welfare in particular the freedom from disease, hunger and stress (in collaboration with HappyMoo project) (PLF/C; P)
Schedule B Room	Thursday 2 September 9:00 – 13:00	Thursday 2 September 14:30 – 18:30
Sanada	<b>Session 60</b> European collaboration in research towards sustainable pig production (P; D) <b>12:00 Pig Commission Meeting</b>	<b>Session 69</b> Improving animal welfare: do we need more regulations, or should the society decide? (H+W; C)
Pischa + Parsenn	<b>Session 61</b> Workshop: Meta-analysis applied to animal science (S+G; EC) <b>12:00 Sheep Commission Meeting</b>	<b>Session 70</b> Improving sustainability of pig production by participatory research (P; C)
Seehorn	<b>12:00 Horse Commission Meeting</b>	<b>Session 71</b> Good practices and strategies in dairy farming (C; T)
Wisshorn	<b>JOINT EAAP/ADSA SESSION 'FUTURE OF HOUSING ...'</b>	<b>Session 72</b> Methods and technologies for research and smart nutrition management in dairy and beef cattle (C; P/SMARTCOW)
	<b>Session 62</b> part 3 (C/ADSA; P/Freewalk) <b>12:00 Cattle Commission Meeting</b>	
Studio	<b>12:00 Nutrition Commission Meeting</b>	<b>Session 73</b> Next generation in animal nutritional science (Young Scientists Session) (N; EC)
Sertig	<b>Session 63</b> Metabolism, oxidative stress and immune function (Ph; P) <b>12:00 Physiology Commission Meeting</b>	<b>Session 74</b> Omics in animal nutrition and physiology (the European joint doctorate program Molecular Animal Nutrition 'MANNA') (Ph; P)
<p>Schedule A – Coffee break: 9:45 – 10:15 and 15:15 – 15:45 / Lunch break: 12:00 – 13:30  Schedule B – Coffee break 10:45 – 11:15 and 16:15 – 16:45 / Lunch break: 13:00 – 14:30  Poster session B: 8:00 – 9:00  Farewell Dinner: 19:00 – 23:00</p>		

# Scientific programme

## Monday 30 August

### Session 01. Phenotypes and strategies for breeding for climate friendly and efficient animals

Room: Davos

Chair: Pszczola

Session type: Theme session

Theatre Session 01		Book of Abstracts page
8:00	Phenotypes and strategies to reduce methane emissions of dairy cattle	111
<b>invited</b>	<i>Y. De Haas, A.E. Van Breukelen, R.F. Veerkamp, G. De Jong and M.N. Aldridge</i>	
8:30	The usefulness of methane production predicted from cows' heat production	111
	<i>M. Pszczola</i>	
8:45	Methane output versus production traits: estimates of genetic associations in Nordic Red cattle	112
	<i>E. Negussie, P. Mäntysaari, L. Maanavilja, J. Nousianen, I. Strandén, A.R. Bayat, T. Mehtiö and M.H. Lidauer</i>	
9:00	Genetic parameters for long term recording of enteric methane emissions of dairy cows	112
	<i>A.E. Van Breukelen, M.N. Aldridge, R.F. Veerkamp, C. Schrooten and Y. De Haas</i>	
9:15	Enteric methane emissions are positively associated to residual feed intake in growing bulls	113
	<i>A. Bes, P. Nozière, Y. Rochette, P. Faure, G. Cantalapiedra-Hijar, P. Guarnido-Lopez, Y. Gaudron, G. Renand and C. Martin</i>	
9:30	Re-thinking modelling of residual feed intake for genomic evaluation in dairy cattle	113
	<i>M.H. Lidauer, E. Negussie, E.A. Mäntysaari, P. Mäntysaari, S. Kajava, T. Kokkonen and T. Mehtiö</i>	
9:45	Coffee break	
10:15	A new genomic evaluation for feed efficiency in Holsteins	114
	<i>J. Jamrozik, G. Kistemaker, P. Sullivan, B. Van Doormaal, T.S. Chud, C.F. Baes, P. Stothard, F.S. Schenkel and F. Miglior</i>	
10:30	Residual feed intake of genomic tested young Holstein bulls	114
	<i>S. Callegaro, G. Niero, M. Penasa, R. Finocchiaro, G. Invernizzi and M. Cassandro</i>	
10:45	Evaluation of different models to define a more suitable residual feed intake estimation in sheep	115
	<i>C.B. Marques, G. Ciappesoni, J.I. Velazco, E.A. Navajas, G.F. Ferreira, Z. Ramos, F. Rovira and I. De Barbieri</i>	
11:00	Multitrait analysis of RFI: heterogeneity of residual variances and modelling of body weight change	115
	<i>E. Negussie, E.A. Mäntysaari, P. Mäntysaari, S. Kajava, T. Kokkonen, T. Mehtiö and M.H. Lidauer</i>	
11:15	Longitudinal residual feed intake criterion for selection	116
	<i>I. David, V.H. Huynh Tran and H. Gilbert</i>	
Poster Session 01		Book of Abstracts page
01.12	Infrared thermography as indicator trait for feed efficiency in dairy cattle	116
	<i>G.C.B. Schopen, M. Heida, E. Mullaart and E.D. Ellen</i>	
01.13	A hologenomic approach for genomic selection on methane emissions and feed efficiency	117
	<i>O. González-Recio, J. López-Paredes, A. Saborio-Montero, A. López-García, M. Gutiérrez-Rivas, N. Charfeddine, I. Goiri, R. Atxaerandio, E. Ugarte, J.A. Jiménez-Montero and A. García-Rodríguez</i>	

## Session 02.

## Environmental impact on cattle genetics and breeding strategies

Room: Aspen 1&2

Chair: König

Session type: Theme session

<b>Theatre Session 02</b>	<b>Book of Abstracts page</b>
8:00 Strategies for deriving auxiliary traits for lameness prediction and breeding value estimation <i>K. Schodl, B. Fuerst-Waltl, C. Egger-Danner and D4dairy-Consortium</i>	117
8:15 Estimation of genetic parameters for dairy cattle behaviour traits generated by AMS <i>R. Schafberg, F. Rosner and H.H. Swalve</i>	118
8:30 Genotype by environment interaction for persistency of production in multiparous SA Holsteins <i>M. Van Niekerk, F.W.C. Nesper, J.B. Van Wyk and V. Ducrocq</i>	118
8:45 Preliminary evidence of genes associated with milk fatty acid profile in different cow breeds <i>M. Milanese, C. Marchitelli, M. Contò, D. Pietrucci, G. Chillemi and A. Crisà</i>	119
9:00 Influence of pedigree on effective population size in European Red Dairy Cattle <i>M. Jakimowicz, T. Suchocki, S. Nyman, D.-J. De Koning and J. Szyda</i>	119
9:15 Benefits and perils of import in small cattle populations <i>J. Obsteter, J. Jenko and G. Gorjanc</i>	120
9:30 Spatial modelling improves genetic evaluation in smallholder breeding programs <i>M.L. Selle, I. Steinsland, O. Powell, J.M. Hickey and G. Gorjanc</i>	120
9:45 Coffee break	
10:15 Heat waves effect on Brown Swiss milk yield and quality <i>A. Maggiolino, V. Landi, N. Bartolomeo, U. Bernabucci, A. Rossoni and P. De Palo</i>	121
10:30 Predicting lifetime production and longevity of organic dairy cows from 1 <sup>st</sup> or 2 <sup>nd</sup> lactation data <i>A. Bieber, D. Hinrichs, F.N. Moser, A. Maeschli, I. Prosepe, I. Lora, G. Cozzi and F. Leiber</i>	121
10:45 Transgenerational heat stress effect on genetic parameters for weight traits in dual-purpose cattle <i>K. Halli, K. Brügemann, M. Bohlouli, T. Yin and S. König</i>	122
11:00 Physiological determinants underlying differences in feed efficiency between crossbreed beef cattle <i>I. Morel, G. Cantalapiedra-Hijar, F. Dohme-Meier, R. Siegenthaler and S. Lerch</i>	122
11:15 Genetic evaluation of carcass traits considering different fattening systems in Switzerland <i>S. Kunz, S. Strasser, U. Schnyder, M. Spengeler, F.R. Seefried and P. Von Rohr</i>	123
11:30 Methane emission from dairy cows measured using laser methane detectors and respiration chambers <i>J. Kecman, J. Heinicke, L. Grütter, B. Kuhla and H.H. Swalve</i>	123
11:45 Time-lagged genotype by heat stress interaction analyses <i>C. Kipp, K. Brügemann, T. Yin and S. König</i>	124

Room: Schwarzhorn

Chair: Oldenbroek

Session type: Working group session

<b>Theatre Session 03</b>		<b>Book of Abstracts page</b>
8:00	Genomic tools to support decisions on conservation of animal genetic diversity <i>J.K. Oldenbroek and J. Fernández</i>	124
8:15	Combining whole-population genotyping and stochastic simulation to improve conservation management <i>C. Reimer, T. Pook, E. Peripolli and H. Simianer</i>	125
8:30	Runs of homozygosity islands reveal highly inbred genomic regions across 124 chicken populations <i>W. Gorssen, R. Meyermans, S. Janssens and N. Buys</i>	125
8:45	Effects of recent and ancient inbreeding on growth in American Angus cattle <i>E.A. Lozada-Soto, C. Maltecca, D. Lu, S. Miller, J.B. Cole and F. Tiezzi</i>	126
9:00	Body and reproduction traits are negatively affected by inbreeding depression in Belgian Milkshopeep <i>R. Meyermans, W. Gorssen, N. Buys and S. Janssens</i>	126
9:15	Genomic and pedigree estimates of effective population size in the Old Kladruber and Noriker horse <i>L. Vostry, H. Vostra-Vydrova, B. Hofmanova, V. Cubric-Curik, G. Gorjanc and I. Curik</i>	127
9:30	Do standardised genotypes in Hardy-Weinberg equilibrium enhance local breeds assignment accuracy? <i>H. Wilmot and N. Gengler</i>	127
9:45 Coffee break		
10:15	Genomic diversity and population structure of Holstein Friesian: Czech population perspective <i>L. Vostry, H. Vostra-Vydrova, N. Moravcikova, R. Kasarda, V. Cubric-Curik and I. Curik</i>	128
10:30	Analysis of Y-chromosome sequences in twelve cattle breeds reveals low within-breed diversity <i>C. Escoufflaire and A. Capitan</i>	128
10:45	Selection signatures in candidate genes affecting exterior traits in several rabbit breeds <i>M. Ballan, S. Bovo, G. Schiavo, M. Schiavitto, R. Negrini and L. Fontanesi</i>	129
11:00	Deciphering the genomic architecture and patterns of selection in Swiss cattle breeds <i>M. Bhati, N.K. Kadri, D. Crysanto and H. Pausch</i>	129
11:15	Effect of SNP related to reproduction traits on the genetic composition of local cattle <i>R. Kasarda, N. Moravčíková, L. Vostrý, H. Vydrová-Vostrá, R. Židek, A. Trakovická, J. Candrák and P. Polák</i>	130
11:30	Study of the variability of Csd alleles based on NGS data in Italian honeybees <i>G. Paolillo, M.G. De Iorio, A. Stella, B. Lazzari and G. Minozzi</i>	130
<b>Poster Session 03</b>		<b>Book of Abstracts page</b>
03.14	Genomic assessment of the Romanov sheep using high density DNA chips <i>T. Deniskova, A. Dotsev, M. Selionova, G. Brem and N. Zinovieva</i>	131
03.15	Genome scans for several morphological traits and defects in the autochthonous Reggiana cattle breed <i>S. Bovo, G. Schiavo, H. Kazemi, G. Moscatelli, A. Ribani, M. Ballan, S. Dall'Olio and L. Fontanesi</i>	131
03.16	The inbreeding landscape of two Italian autochthonous cattle breeds from Parmigiano-Reggiano region <i>G. Schiavo, S. Bovo, A. Ribani, V.J. Utzeri, E. Mancin, R. Mantovani, S. Dall'Olio and L. Fontanesi</i>	132

Room: Jakobshorn

Chair: Kenez / Montanholi

Session type: Theme session

Theatre Session 04		Book of Abstracts page
8:00	Faecal metabolites as biomarkers of diet and heat stress in dairy cows <i>A. Ruiz-Gonzalez, J.E. Rico and D.E. Rico</i>	132
8:30	Effects of heat stress on performance and gastrointestinal tract microbiome of weaned calves <i>A.B.P. Fontoura, M.X. Rodrigues, E. Grilli, M.E. Van Amburgh, R.C. Bicalho and J.W. McFadden</i>	133
8:45	Milk fatty acids as markers of heat stress in cows fed diets with varying protein composition <i>A. Ruiz-Gonzalez, A. Celemin, Y.H. Leung, A. Kenez, P.Y. Chouinard, H. Lapierre, D.R. Ouellet, R. Gervais and D.E. Rico</i>	133
9:00	Early detection of heat stress in grazing dairy cows by use of behavioural and physiological traits <i>A. Pontiggia, A. Münger, L. Eggerschwiler, D. Stucki, S. Ammer, R. Bruckmaier, F. Dohme-Meier and N. Keil</i>	134
9:15	Individual differences in the physiological response to heat stress of dairy goats <i>M. Ramon, S. González-Luna, S. Serhan, A.A.K. Salama, A. Molina, M. Sánchez, C. Díaz, X. Such, G. Caja and M.J. Carabaño</i>	134
9:30	Faecal microbiota and their association with heat stress in Chinese Holstein cows <i>B. Czech, K. Wang, S. Chen, Y. Wang and J. Szyda</i>	135
9:45 Coffee break		
10:15	Identification of heat stress responsive transcripts in Sprague-Dawley rats using mixed linear model <i>K. Kotlarz, M. Mielczarek, T. Suchocki, J. Dou, Y. Wang and J. Szyda</i>	135
10:30	Impact of heat stress on physiological characteristics and nitrogen utilisation in growing pigs <i>P. Bikker, E. Parand, V. Van Der Nat, H.R. Kim and A. Jansman</i>	136
10:45	Betaine and zinc effect on growth and plasma variables of Iberian pigs under long term heat stress <i>Z. Pardo, I. Seiquer, M. Lachica, R. Nieto, L. Lara and I. Fernandez-Figares</i>	136
11:00	Relationships of stress during fall corral weaning with future productive performance in beef cattle <i>L. Braga, R. Palme, S. Miller, M. Sargolzaei and Y. Montanholi</i>	137
11:15	Energy balance and feed restriction effects on milk fatty acids and metabolic profile of beef cows <i>K. Orquera, M. Blanco, J.R. Bertolín, J. Ferrer and I. Casasús</i>	137
11:30	Effect of feeding and shelter management on age at first ejaculation in Murrah buffalo bulls <i>P. Singh, C.K. Prasad, S.V. Singh, M. Mukesh and S.S. Lathwal</i>	138
Poster Session 04		Book of Abstracts page
04.13	Effect of feed restriction on lactating Charolais cows <i>P.M. Martin, A. Vinet, F. Launay, D. Dozias, D. Maupetit, J. Sapa and G. Renand</i>	138
04.14	Heat tolerance indices for local sheep breeds in the Mediterranean-Karagouniko & Barki case studies <i>M.A. Karatzia, A.M. Abounaga, M. El Shafie, D. Tsiokos, T. Abdelsabour, C. Ligda, T. Abdelkhalik and E.N. Sossidou</i>	139
04.15	Challenges of 16S rRNA analysis in Chinese Holstein cows under heat stress condition <i>B. Czech, K. Wang, S. Chen, Y. Wang and J. Szyda</i>	139
04.16	Development of a gut barrier failure model in broiler using a rye-wheat based diet and heat stress <i>C. Emsenhuber, B. Doupovec, B. Grenier, V. Nagl and N. Reisinger</i>	140

04.17	In silico prophylactic supplement for acute heat stress from expressed sequence tags of chicken <i>I.W.S. Mahardhika, F.N.L. Hida and B.S. Daryono</i>	140
04.18	The effects of HeatAntistress on dairy cattle performance during increased heat stress periods <i>A. Plomaritou, D. Tsolakis, T. Michou, E. Sourla, K. Naselos, C. Papatzikou and A. Foskolos</i>	141
04.19	Prediction of the effects of heat stress on the farrowing rate in sows <i>D. Renaudeau, B. Déneché, P. Corre, B. Badouard and J.Y. Dourmad</i>	141

## Session 05.

## Insects as feed and bioremediation tool

Room: Forum

Chair: Gasco / Ottoboni / Murta

Session type: Theme session

	Theatre Session 05	Book of Abstracts page
8:00	Insect-fed poultry value chains: trade-offs between opportunities and risks <i>H.W. Saatkamp, Y. Aartsma, H. Hogeveen and M. Dicke</i>	142
8:15	Is the use of live insect larvae as environmental enrichments able to improve broiler welfare? <i>I. Biasato, S. Bellezza Oddon, E. MacChi, G. Chemello, L. Gasco and A. Schiavone</i>	142
8:30	Impact of dietary black soldier fly larvae on laying hen performance, egg quality and lipid profile <i>P.H. Patterson, N. Acar and E.A. Koutsos</i>	143
8:45	Selenium biofortification of <i>Hermetia illucens</i> prepupae <i>L. Ferrari, M. Ottoboni, S. Mazzoleni, F. Defilippo, P. Bonilauri, R. Ørnsrud and L. Pinotti</i>	143
9:00	Inclusion of <i>Tenebrio molitor</i> in broiler feeds as a partial substitution for hipro soybean meal <i>K.J. Hawkey, Z.C.T.R. Daniel, G. Bone, T. Parr, J.M. Brameld and A. Salter</i>	144
9:15	Practical, semi-purified diets for protein requirement determination in <i>Hermetia illucens</i> larvae <i>S. Bellezza Oddon, I. Biasato and L. Gasco</i>	144
9:30	Production and optimization of <i>Hermetia illucens</i> (L.) larvae reared on former foodstuffs <i>A. Gligorescu, C. Fischer, J. Fynbo and B. Larsen</i>	145
9:45	Coffee break	
10:15	Effect of dietary crude protein on growth performance of mealworms ( <i>Tenebrio molitor</i> ) <i>B.R. Paulicks, A. Vorndran, S. Kuenz and W. Windisch</i>	145
10:30	Suitability of agro-by-products for the rearing of <i>Zophobas morio</i> and <i>Alphitobius diaperinus</i> larvae <i>C.I. Rumbos, D.G.A.B. Oonincx, M. Gourgouta, V. Michail, I.T. Karapanagiotidis, A. Asimaki, E. Mente and C.G. Athanassiou</i>	146
10:45	Safety of black soldier fly ( <i>Hermetia illucens</i> ) larvae reared on substrates with veterinary drugs <i>E.F. Hoek - Van Den Hil, M.G.M. Van De Schans, G. Bor and H.J. Van Der Fels-Klerx</i>	146
11:00	Growth and nutrient conversion of BSF larvae fed substrates varying in chemical composition <i>T. Veldkamp, K. Van Rozen, P. Van Wikselaar, H.J.H. Elissen and R.Y. Van Der Weide</i>	147
11:15	Rearing density and dietary inclusion of cassava and taro leaves on growth performance in crickets <i>D. Cruz, H. Arevalo and D. Vernot</i>	147



05.13	Replacement of conventional fat sources by black soldier fly larvae fat in weaned piglet nutrition <i>D. Gardan-Salmon, M. Bézagu, J.C. Besnard, V. Bégos and M. Walraven</i>	148
05.14	Effects of four mycotoxins on survival, growth and toxin accumulation in <i>Musca domestica</i> larvae <i>K. Niernans, H.J. Van Der Fels-Klerx, E.F. Hoek- Van Den Hil and J.J.A. Van Loon</i>	148
05.15	Effect of yellow mealworm meal on growth performance and some welfare traits of broilers <i>S. Vasilopoulos, I. Giannenas, S. Savvidou, E. Bonos, C. Rumbos, S. Andreadis, G. Skoulakis, E. Papadopoulos, P. Fortomaris and C. Athanassiou</i>	149
05.16	Effects of dietary yellow mealworm on meat composition and liver genes' expression of broilers <i>S. Vasilopoulos, I. Giannenas, E. Bonos, C. Rumbos, S. Savvidou, E. Sidiropoulou, I. Skoufos, A. Tzora, G. Michailidis and C. Athanassiou</i>	149
05.17	Dietary yellow mealworm effects on intestine and liver architecture of broilers <i>S. Vasilopoulos, I. Stylianaki, E. Bonos, I. Giannenas, E. Papadopoulos, C. Rumbos, S. Savvidou, K. Grigoriadou and C. Athanassiou</i>	150
05.18	Effects of replacing soybean with black soldier fly ( <i>Hermetia illucens</i> ) in different swine tissues <i>I. Vieira, A. Alvarado, J. Catarino, O. Moreira, P. Faisca and D. Murta</i>	150
05.19	Consumption preference of feed including <i>Tenebrio molitor</i> flour in slow-growing chickens <i>J. Nieto, J. Plaza, J.A. Abecia, I. Revilla and C. Palacios</i>	151
05.20	Partially defatted black soldier fly meal inclusion in juvenile Pacific white shrimp diets <i>C. Guidou, C. Trespeuch, E. De Swaef and J. Dantas-Lima</i>	151
05.21	Effect of the protein level in diets for growth of <i>Tenebrio molitor</i> larvae <i>A. Remiro, S. Remón and M. Fondevila</i>	152
05.22	Can agro-based wastes be a sustainable approach to improve soil health and productivity? <i>C. Malheiro, A.M.V.M. Soares, D. Murta, R.G. Morgado and S. Loureiro</i>	152
05.23	Isolation and identification of dominant bacteria from black soldier fly larvae for practical uses <i>E. Gorrens, L. Van Moll, L. Froominckx, J. De Smet and L. Van Campenhout</i>	153
05.24	Bioremediation of poultry and pig manure by black soldier fly ( <i>Hermetia illucens</i> ) larvae <i>C. Ligeiro, R. Nunes, M.A. MacHado, D. Murta, M.A. Castelo-Branco, R. Menino and O. Moreira</i>	153
05.25	Development of housefly larvae on manure from herbivores, omnivores and carnivores <i>A.U. Nayak, D.G.A.B. Ooninx, J.J.A. Van Loon and G. Bosch</i>	154
05.26	Formulated fly perfume for oviposition control – developing FlyScent odour attractants using PTR-MS <i>Q. Nguyen, Y. Gilad, J. Fynbo and A. Gligorescu</i>	154
05.27	Partially defatted black soldier fly meal inclusion in feed of different species <i>C. Guidou and C. Trespeuch</i>	155

## Session 06. Sensing dynamics in livestock physiology disruption through images and other non-invasive alternatives

Room: Sanada 1&2

Chair: Montanholi / Gondret

Session type: Theme session

<b>Theatre Session 06</b>		<b>Book of Abstracts page</b>
9:00	Sensors for animals in future food systems – Farmworx approach <i>invited</i> S. Neethirajan, I. Reimert, A.V. Knegsel, I. Van Dixhoorn, L. Bolhuis, H. Brand and B. Kemp	155
9:30	Measuring sickness recovery with thermal imaging S.P. Parois, T.B. Rodenburg, L.E. Van Der Zande, H. Telkänranta, B. Kemp and J.E. Bolhuis	156
9:45	Use of thermal imaging in the detection of claw disorders in dairy cows L. Frondelius, H. Lindeberg, S. Ruuska, T. Koistinen and M. Pastell	156
10:00	Using thermal imaging to detect tail tip alterations in dairy cows S. Meier, K. Abel and P.V. Kremer-Rücker	157
10:15	Interest of 3D imaging technology to study feed efficiency in dairy cows A. Lebreton, P. Faverdin and Y. Le Cozler	157
10:30	A preliminary study of changes in circadian rhythmicity of sheep around lambing J.A. Abecia, C. Palacios, S. Luis and A. Bjarnason	158
10:45 Coffee break		
11:15	Inertial sensors to classify animal behaviour and quantify pasture intake in grazing ruminants <i>invited</i> A.B. Ingham, F.A. Alvarenga, P.L. Greenwood, R. Arablouei, P. Valencia, A. Rahman, D.V. Smith, B.A. Little and G.J. Bishop-Hurley	158
11:45	Indirect approaches of digestive processes to determine feed efficiency in dairy cows P. Faverdin, A. Fischer, A. Lebreton, C. Xavier and Y. Le Cozler	159
12:00	Evaluation of two wireless rumen pH sensors for dairy cows F. Schori and A. Münger	159
12:15	Associations between liver ultrasounds measurements and productivity indicators in Holstein cows M. Piazza, D. Giannuzzi, R. Tessari, E. Fiore, M. Giancesella, S. Pegolo, S. Schiavon, E. Trevisi, P. Ajmone Marsan, A. Cecchinato and L. Gallo	160
<b>Poster Session 06</b>		<b>Book of Abstracts page</b>
06.11	Use of thermal images to search for roe deer fawns before mowing J. Mačuhová, T. Wiesel and S. Thurner	160
06.12	Vocal and behavioural differences of lambs between different sheep breeds K. Papadaki, G.P. Laliotis, P. Koutsouli and I. Bizelis	161
06.13	Do the lambs selected for better feed efficiency have the same feeding behaviour? C. Marie-Etancelin, J.L. Weisbecker, D. Marcon and F. Tortereau	161
06.14	Explaining cattle weights with environmental and animal traits V. Link, T. Kuntzer, S. Redmond and S. Rieder	162
06.15	Relation between milk urea nitrogen and urine nitrogen excretion in dairy cows as depending on breed J. Braun, A. Burren, M. Kreuzer, T. Kupper and S. Probst	162

06.16	Determining colour in the CIELab space of bovine and porcine longissimus dorsi using computer vision <i>A. Catharina Batista, M. Almeida, C. Guedes, V. Santos, J. Manuel Almeida, A. Teixeira and S. Silva</i>	163
06.17	Biomarkers in milk as predictors for metabolic health status of dairy cows during early lactation <i>S. Heirbaut, X. Jing, L. Vandaele and V. Fievez</i>	163
06.18	Multicolour flow cytometry for quality control of frozen bovine sperm and bull fertility prognostics <i>E. Malama, M. Siuda, I. Ibanescu, S. Wyck, T. Kompara, U. Witschi and H. Bollwein</i>	164

## Session 07. Mixed crop/livestock systems – do they deliver more resilient food systems

Room: Pischä + Parsenn

Chair: Boland

Session type: Challenge session

Theatre Session 07		Book of Abstracts page
9:00	How to re-implement synergies between crops and livestock farming? <b>invited</b> <i>J.L. Peyraud and A. Nanda</i>	164
9:30	Development of plants with improved composition for animal nutrition and the environment <b>invited</b> <i>M.R.F. Lee and J. Napier</i>	165
9:45	Reducing the feed and food competition: perspectives and best practices <b>invited</b> <i>M. Schulman</i>	165
10:00	Novel feed from crops and crop residues – vision from the feeding industry <b>invited</b> <i>R. Tijssens</i>	166
10:15	Animal breeding towards the valuation of new feed <b>invited</b> <i>L. Verschuren</i>	166
10:30	Phenotypes for grass utilisation and persistence under grazing to improve grass breeding <b>invited</b> <i>T. Tubritt, L. Shallo and M. O'Donovan</i>	167
10:45 Coffee break		
11:15	Improving resilience of organic beef-sheep farming systems <i>C. Mosnier, N. Moufid, F. Joly and M. Benoit</i>	167
11:30	Does integration promote sustainability in organic multi-species livestock farms <i>M. Benoit, L. Steinmetz, D. Ulukan, G. Bernes, C. Brock, A. De La Foye, B. Dumont, M. Grillot, M.A. Magne, T. Meischner, M. Moerman, L. Monteiro, B. Oehen, D. Parsons, R. Primi, L. Shanz, P. Veysset, C. Winckler and G. Martin</i>	168
11:45	Pulses and oilseed rape for food and feed <b>invited</b> <i>O. Sass</i>	168
12:00	Panel discussion <i>J.L. Peyraud and M. Scholten</i>	169

Room: Wisshorn

Chair: Stock

Session type: Theme session

<b>Theatre Session 08</b>		<b>Book of Abstracts page</b>
9:00	Does morphology make the athlete – genetic analysis of Argentine polo horses lines <i>F. Azcona, A. Molina, P. Peral García and S. Demyda-Peyrás</i>	169
9:15	Estimation of genetic parameters depending on the distance in endurance competitions of horses <i>K.D. Arias, J.P. Gutiérrez and I. Cervantes</i>	170
9:30	Young horse competitions as predictors of adult horse performance in endurance races <i>I. Cervantes, C. Sopena, N. Formoso-Rafferty, M.A. Pérez-Cabal, K.D. Arias and J.P. Gutiérrez</i>	170
9:45	Genetic relationship between free movements and under rider gaits in Pura Raza Española horse <i>M. Ripollés-Lobo, D.I. Perdomo-González, M.J. Sánchez-Guerrero, E. Bartolomé and M. Valera</i>	171
10:00	Estimation of genetic parameters for ‘early life’ jumping traits in the Belgian Warmblood horse <i>L. Chapard, I. Meurrens, N. Buys and S. Janssens</i>	171
10:15	Assessing the value of genetic linear profiles for selecting for sport performance of riding horses <i>K.F. Stock, I. Workel, A. Hahn and W. Schulze-Schleppinghoff</i>	172
10:30	Single-step genomic evaluation in German riding horses <i>M. Wobbe, H. Alkhoder, K.F. Stock, Z. Liu, S. Vosgerau, N. Krattenmacher, M. Von Depka-Prondzinski, E. Kalm, R. Reents, W. Nolte, C. Kühn, J. Tetens and G. Thaller</i>	172
10:45 Coffee break		
11:15	Validating genomic selection for sport traits in Dutch warmblood horses <i>D.J.G. Arts and R. Bergsma</i>	173
11:30	Microsatellite alleles imputation from SNP genotypes for parentage verification in sport horses <i>H. Crichan, C. Engler, E. Goulas, S. Dhorne-Pollet, M. Addes and A. Ricard</i>	173
11:45	Pseudoautosomal region as a key factor for the molecular detection of Turner’s syndrome in horses <i>Y. Pirosanto, N. Laseca, F. Azcona, A. Molina, M. Valera and S. Demyda-Peyrás</i>	174
12:00	Screening for genomic association with fertility in PRE horses using high density genotyping data <i>N. Laseca, S. Demyda-Peyrás, D.I. Perdomo-González, M. Ramón, M. Muñoz-Cruzado, B. Escribano, P. Azor, M. Valera and A. Molina</i>	174
12:15	Genomics to maintain diversity and robustness of Coldblood breeds <i>J. Sievers, J. Metzger and O. Distl</i>	175
12:30	Genetic parameters for new phenotypes measured in Italian Heavy Draught Horse <i>E. Mancin, C. Sartori, B. Beniamino Tuliozzi, G. Pigozzi and R. Mantovani</i>	175
12:45	GxE and selection response for fertility and linear type traits in Italian Heavy Draught Horse <i>C. Sartori, E. Mancin, B. Tuliozzi and R. Mantovani</i>	176
<b>Poster Session 08</b>		<b>Book of Abstracts page</b>
08.15	Shape and gaits 2.0 – high-precision phenotyping for equine breeding <i>E.H. Haraldsdottir, A.I. Gmel, M.A. Weishaupt, F.M. Serra Bragança, T. Druml, A.M. Cruz and M. Neuditschko</i>	176
08.16	Are conformation characteristics of Pura Raza Española adult horses predictable? <i>M.D. Gómez, D.I. Perdomo-González, A. Molina, M.J. Sánchez-Guerrero and M. Valera</i>	177

08.17	Phenotypic and genetic analysis of conformational defects of the knee in Pura Raza Española horse <i>M. Ripollés-Lobo, D.I. Perdomo-González, M.J. Sánchez-Guerrero, E. Bartolomé and M. Valera</i>	177
08.18	Exploratory whole genome association with fertility in PRE horse breed using chromosome X NGS data <i>N. Laseca, M. Muñoz-Cruzado, S. Demyda-Peyrás, D. Goszczynski, M. Ramón, B. Escribano, A. Encina, M. Valera and A. Molina</i>	178
08.19	Inbreeding coefficient estimation methodologies comparison in Pura Raza Española horse population <i>D.I. Perdomo-González, A. Molina, I. Cervantes, N. Laseca, S. Demyda-Peyrás and M. Valera</i>	178

## Session 09.

## Feeding the gut: from microbiome to models

Room: Studio

Chair: Abdennebi-Najar / Goselink

Session type: Theme session

Theatre Session 09		Book of Abstracts page
9:00	Clustering of the faecal microbiome during stressful phases in carnitine supplemented dairy cows <i>J. Tröscher-Mußotter, J.S. Saenz, D. Borda-Molina, S. Grindler, S. Dänicke, J. Frahm, A. Camarinha-Silva, K. Huber and J. Seifert</i>	179
9:15	Microalgae <i>Schizochytrium</i> spp.: a game-changer in goats' rumen microbiome <i>A. Mavrommatis, D. Skliros, E. Fliemetakis and E. Tsiplakou</i>	179
9:30	Unrevealing the effect of seaweeds on rumen bacterial and archaeal microbiota <i>T. Yergaliyev, S. Künzel, Á. Pétursdóttir, D.J. Humphries, C. Reynolds, M. Rodehutsord and A. Camarinha-Silva</i>	180
9:45	Association between <i>in situ</i> rumen kinetics and <i>in vitro</i> gas production of corn silage nutrients <i>I. Ansia, R. Walvoort, A. Santos, B.M. Tas, J.A. Metcalf, H. Van Laar and W. Pellikaan</i>	180
10:00	Determination of linoleic acid requirements for dairy cows using a meta-analysis approach <i>P. Denis, A. Ferlay, P. Nozière, C. Gerard and P. Schmidely</i>	181
10:15	<i>In vitro</i> digestion and Ussing chamber to investigate nutrient effects on intestinal physiology <b>invited</b> <i>M. Tretola, P. Silacci, R. Sousa, L. Egger, F. Colombo, M. Ottoboni, L. Pinotti and G. Bee</i>	181
10:45 Coffee break		
11:15	<i>Ex vivo</i> intestinal model for the evaluation of nutrient bioaccessibility <i>M. Dell'Anno, F. Acocella, P. Riccaboni and L. Rossi</i>	182
11:30	Role of short chain fatty acids to counteract inflammatory stress in mucus secreting HT29-MTX cells <i>C. Giromini, A. Baldi, R. Rebucci, T.S. Sundaram and S. Purup</i>	182
11:45	Anti-protozoal efficacy of pine bark extracts against <i>Cryptosporidium parvum</i> in cell culture <i>B. Blomstrand, H. Enemark, Ø. Øines, H. Steinshamn, I. Aasen, K.-C. Mahnert, K. Sørheim, S. Athanasiadou, S. Thamsborg and I. Woolsey</i>	183
Poster Session 09		Book of Abstracts page
09.10	Industrial by-products as alternative to cereals do not impair piglets gut microbiota <i>M. Tretola, A. Luciano, M. Ottoboni, M. Manoni, M. Comi, F. Fumagalli, N. Rovere and L. Pinotti</i>	183
09.11	Silage type but not <i>Acacia mearnsii</i> supplementation influences rumen microbiota of dairy cows <i>G. Lazzari, A. Camarinha Silva, J. Seifert, S. Schrade and F. Dohme-Meier</i>	184
09.12	Modelling multiple scenarios of glyphosate speciation in rumen fluid of dairy cattle <i>J.L. Vicini, T.H. Klusmeyer and W.R. Harris</i>	184

09.13	<i>In vitro</i> study of the effect of riboflavin on hindgut microbial fermentation in pigs <i>Z. Amanzougarene, E. Pérez-Calvo, G. De La Fuente and M. Fondevila</i>	185
09.14	Low variability in gene expression of intestinal organoids and original tissue in pigs <i>D. Schokker, H. Woelders, R. Rikkers, S.K. Kar, O. Madsen, A. Taverner, N. Taverner, J. Wells and E. Ellen</i>	185

## Session 10.

## Early career competition: stressing innovation in pig and poultry industry

Room: Sertig

Chair: Vigors / Nilsson / Trevisi

Session type: Early-career scientist's session

	<b>Theatre Session 10</b>	<b>Book of Abstracts page</b>
9:00	The level of hemicelluloses in lactating sow diets affects milk composition <i>F. Palumbo, G. Bee, P. Trevisi, R. Badertscher, C. Egger and M. Girard</i>	186
9:15	Sows diet enriched with BCAA and/or Arg lead to an improvement of sow' and piglet' performance <i>F. Correa, P. Trevisi, D. Luise, H. Ohara, A. Simongiovanni, T. Chalvon-Demersay and P. Bosi</i>	186
9:30	Differences in enzyme activity between piglets fed dry feed or liquid feed prior to weaning <i>J.G. Madsen, N. Byrgesen, M.S. Cilieborg and C. Amdi</i>	187
9:45	Understanding piglets' intestinal microbiome changes caused by zinc oxide and apramycin <i>J.M. Ortiz-Sanjuán, H. Argüello, R. Cabrera-Rubio, F. Crispie, P.D. Cotter, J.J. Garrido and E.G. Manzanilla</i>	187
10:00	Blood serum metabolites and faecal VFA as tools to detect unbalanced diets in grower-finisher pigs <i>J. Camp Montoro, D. Solà-Oriol, R. Muns and E.G. Manzanilla</i>	188
10:15	Can genotyping and breeding value estimation for hens increase efficiency of layer breeding? <i>L. Büttgen, H. Simianer and T. Pook</i>	188
10:30	Genetic study of social interaction models for the predictability of overall biting in gilts <i>N.G. Leite, E.F. Knol, S. Nuphaus, S. Tsuruta and D. Lourenco</i>	189
10:45	Coffee break	
11:15	Influence of sex on endogenous antioxidant defences in broiler chickens, a new perspective? <i>P. Engler, E. Richard and A. Benarbia</i>	189
11:30	Dietary protein and ractopamine effects on boar taint and testes parameters of immunocastrated pigs <i>T. Needham, R. Gous, H. Lambrechts, E. Pieterse and L. Hoffman</i>	190
11:45	Effect of straw distribution method on pig behaviour <i>T. Wallgren and S. Gunnarsson</i>	190
12:00	Effect of lameness on feed intake and growth performance of grow-finisher pigs <i>J. Camp Montoro, L. Boyle, A. Levacher and E.G. Manzanilla</i>	191
12:15	Applying metabolomics for revealing novel biomarkers and metabolic fingerprints of welfare in pigs <i>L. Morgan, R. Birkler, S. Shaham-Niv, T. Wachsman, M. Bateson and E. Gazit</i>	191
12:30	An economic and environmental optimization model for pig-fattening units using a carbon tax <i>M. Davoudkhani, F. Mahé, J.Y. Dourmad, A. Gohin, E. Darrigrand and F. Garcia-Launay</i>	192

**Poster Session 10****Book of Abstracts page**

10.14	Attempts to assess the onset of sexual maturity in finishing boars <i>S. Niedersüß, R. Eisenreich, J. Dodenhoff, A. Rieger, S. Roiger, M. Heudecker and R. Fries</i>	192
10.15	A blend of active compounds (Fresh Up) to mitigate heat stress in lactating sows <i>E. Janvier, B. Freitas, S. Putrino, F. Payola, C. Launay, E. Schetelat, F. Guillard and A. Samson</i>	193
10.16	Genetic analysis of protein efficiency in Swiss Large White pigs <i>E.O. Ewaoluwagbemiga, H. Pausch, G. Bee and C. Kasper</i>	193

**Session 11.****Low carbon animal nutrition: methane emission and climate**

Room: Davos

Chair: De Campeneere / Bruggeman

Session type: Theme session

**Theatre Session 11****Book of Abstracts page**

13:30	Enteric methane mitigation in dairy cattle via feeding strategies <b>invited</b> <i>D. Van Wesemael, J. Van Mullem, L. Vandaele, S. De Campeneere, T. Van De Gucht, V. Fievez and N. Peiren</i>	194
14:15	Effect of feed strategies on the carbon footprint and economic variables of cow-calf systems <i>P. Toro-Mujica</i>	194
14:30	The effect of type of forage on the methane emission and performance of dairy cows: a meta-analysis <i>A. Rota Graziosi, L. Rapetti, X. Dai and S. Colombini</i>	195
14:45	Tannins and essential oils as dietary ingredients to mitigate rumen methane and ammonia production <i>G. Foggi, M. Terranova, A. Cappucci, G. Conte, M. Kreuzer and M. Mele</i>	195
15:00	<i>In vitro</i> rumen total gas and methane formation from Northern hemisphere macroalgae <i>M. Thorsteinsson, H.H. Hansen, N.P. Nørskov and M.O. Nielsen</i>	196
15:15	Coffee break	
15:45	Could aquatic resources help to mitigate enteric methane from ruminants? <b>invited</b> <i>G. Van Duinkerken, W. Muizelaar and J. Dijkstra</i>	196
16:15	Feeding mixtures of seaweeds has no effect on methane emission of beef cattle <i>D. Humphries, Á. Pétursdóttir, S. Künzle, M. Rodehutschord, L. Ford and C. Reynolds</i>	197
16:30	Mitigation extent of GHG emissions in Sardinia dairy sheep farms by forage quality improvement <i>P. Sau, M.F. Lunesu, P. Arca, M.G. Serra, E. Vagnoni, A. Franca, G. Molle, M. Decandia, P. Duce and A.S. Atzori</i>	197
16:45	Life cycle assessment (LCA) of Simmenthal cattle organic farms in Italy <i>E. D'Agaro, S. Mattiussi and F. Rosa</i>	198

**Poster Session 11****Book of Abstracts page**

11.10	Methane emission by alpacas and sheep grazing Andean natural grasslands during dry season <i>G. Gómez, T. Huanca, K. Salazar and C. Gómez</i>	198
11.11	The effect of natural essential oils and synthetic essential oils on ruminal fermentation <i>A. Martín, L. Abdennebi-Najar, R. Ksouri, I. Mateos, M.J. Ranilla, S. López, F.J. Giráldez and S. Andrés</i>	199
11.12	Tradilin™ in dairy cow diet also leads to a decrease in enteric methane emission <i>S. Mendowski, V. Chatellier and G. Chesneau</i>	199

11.13	Condensed tannins from Sainfoin ( <i>Onobrychis viciifolia</i> ): effects on <i>in vitro</i> ruminal parameters <i>S. Lobón, C. Baila, M. Blanco, I. Casasús and M. Joy</i>	200
11.14	Rumen ciliates and methane production of beef bulls fed a biodiverse haylage, low-starch Mixed Diets <i>A.E. Francisco, A. Vaz-Portugal, K. Paulos, J. Santos-Silva and M.T. Dentinho</i>	200
11.15	How much the introduction of legume-based forage can mitigate climate change in a sheep farm? <i>M.F. Lunesu, A.S. Atzori, A. Ledda, P. Sau, F. Lai, R. Rubattu, A. Mazza, A. Fenu, F. Correddu and A. Cannas</i>	201
11.16	Response in blood methemoglobin level in dairy cows supplemented with dietary nitrate <i>M. Maigaard, M.R. Weisbjerg, M. Johansen and P. Lund</i>	201
11.17	Effect of tannins in <i>Onobrychis</i> and <i>Quercus robur</i> on <i>in vitro</i> ruminal gas and ammonia formation <i>H. Sutter, K. Schweingruber, M. Terranova and M. Schick</i>	202

## Session 12.

## Single-step genomic evaluation

Room: Aspen 1&2

Chair: Wang

Session type: Free communications / Bottom-up session

	<b>Theatre Session 12</b>	<b>Book of Abstracts page</b>
13:30	Detecting effective starting point of genomic selection by divergent trends from BLUP and ssGBLUP <i>I. Misztal, R. Abdollahi-Arpanahi and D. Lourenco</i>	202
13:45	Impact of preselection on subsequent ssGBLUP evaluations of pigs <i>I. Jibrila, J. Vandenplas, J. Ten Napel, R. Bergsma, R.F. Veerkamp and M.P.L. Calus</i>	203
14:00	Modelling genetic differences of combined broiler chicken populations in single-step GBLUP <i>M. Bermann, D. Lourenco, V. Breen, R. Hawken, F. Brito Lopes and I. Misztal</i>	203
14:15	Unknown-parent group and metafounder models for missing pedigree in single-step genomic BLUP <i>Y. Masuda, S. Tsuruta and I. Misztal</i>	204
14:30	GEBV and h <sup>2</sup> of milk traits in a nucleus of Sarda ewes depend on a matrix weight in ssGBLUP <i>S. Salaris, M.G. Usai, S. Casu and A. Carta</i>	204
14:45	Integration of MACE information into single-step evaluations for conformation in Brown Swiss <i>E.C.G. Pimentel, C. Edel, D. Krogmeier, R. Emmerling and K.-U. Götz</i>	205
15:00	Interim genomic prediction for young genotyped animals for different single-step evaluations <i>J. Vandenplas, R. Bergsma and M.P.L. Calus</i>	205
15:15	Coffee break	
15:45	Single step evaluation for resistance to ketosis in a Brown Swiss cattle population <i>A.M. Butty, U. Schuler, M. Spengeler and P. Von Rohr</i>	206
16:00	Implementation of single-step evaluations for fitness traits in Fleckvieh and Brown Swiss <i>J. Himmelbauer, H. Schwarzenbacher and C. Fuerst</i>	206
16:15	Multi-breed genomic evaluation for dairy cattle in the US using single-step GBLUP <i>A. Cesarani, D. Lourenco, Y. Masuda, S. Tsuruta, A. Legarra, E. Nicolazzi, P. Vanraden and I. Misztal</i>	207
16:30	Breeding value reliabilities for multiple-trait single-step genomic BLUP <i>H. Ben Zaabza, M. Taskinen, T. Pitkänen, G.P. Aamand, E.A. Mäntysaari and I. Strandén</i>	207



16:45 Evaluation of accuracy and bias of beef cattle international single-step genomic evaluations 208  
*R. Bonifazi, M.P.L. Calus, J. Ten Napel, A. Michenet, S. Savoia, A. Cromie, A. Roozen, R.F. Veerkamp and J. Vandenplas*

17:00 A fast method for approximating reliabilities in genomic BLUP 208  
*M. Bermann, D. Lourenco, Y. Masuda and I. Misztal*

### Poster Session 12

Book of Abstracts page

12.14 An approach to reduce computing time in multi-trait single-step evaluations 209  
*L.H. Maugan, T. Tribout and V. Ducrocq*

12.15 Fitting the mean of genotyped individuals per breed had limited benefit for single-step evaluations 209  
*M.N. Aldridge, J. Vandenplas, J.M. Henshall, P. Duenk, R.J. Hawken and M.P.L. Calus*

## Session 13. A – Joining forces in the use and conservation of genetic resources

Room: Schwarzhorn

Chair: Hiemstra

Session type: Project session

### Theatre Session 13A

Book of Abstracts page

**invited** 13:30 The European genetic resources strategy – joining forces in conservation and sustainable use 210  
*S.J. Hiemstra and & European Union Horizon 2020 Gen Res Bridge Consortium*

14:30 Conservation of genetic resources at landscape level through demonstration cases 210  
*E. Sturaro, T. Myking, K.B. Fjellstad, N. Sæther, H. Kraigher, M. Westergren, J. Sustar Vozlic, D. Bojkovski, J. Phillips, N. Maxted, F. Lefevre, M. Bou Dagher Kharrat and S. Perez-Espona*

15:00 Transboundary breeds in Europe: promote concerted action between countries 211  
*E. Charvolin-Lemaire, E. Sturaro, D. Bojkovski, C. Ligda, D. Tsiokos, E. Sosin, G. Polak, S. Stojanovic and F. Tejerina*

## B – Use of functional genome annotation in farmed animal breeding

Room: Schwarzhorn

Chair: Charlier / Calus

Session type: Project session

## Session 14.

## The Sm@RT and TechCare projects

Room: Jakobshorn

Chair: Morgan-Davies / Halachmi

Session type: Project session

### Theatre Session 14

Book of Abstracts page

13:30 Update on TechCare: innovative technologies to improve small ruminant welfare management 211  
*C. Morgan-Davies, C. Dwyer, J.M. Gautier, E. Gonzalez-Garcia, F. Kenyon, G. Molle, E. Sossidou, R. Carelli, I. Halachmi and E. Metuki*

13:45 Developing a welfare prioritization for small ruminants – the TechCare project 212  
*C.M. Dwyer, G. Jorgensen, A. Aupiais, B. Fagot, L. Ciszter, J.M. Gautier, V. Giovanetti, I. Hansen, F. Kenyon, J.B. Menassol, C. Manca, M. Reeves, X. Such, E. Sossidou and C. Morgan-Davies*

14:15 A stakeholder co-design approach for improving small ruminant welfare: the TechCare Project 212  
*E.N. Sossidou, C. Dwyer, E. González-García, I. Halachmi, J.M. Gautier, G. Caja, A. Rosati, A. Menet, S.I. Patsios, A. Barnes and C. Morgan-Davies*

14:30	State-of-the-art in precision livestock farming technologies for monitoring small ruminant welfare <i>V. Giovanetti, G. Molle, M. Decandia, C. Manca, M. Acciaro, C. Morgan-Davies, M. Pollock, B. Fagot, J.M. Gautier, A. Elhadi, G. Caja, F. Kenyon, I. Halachmi, A. Bar Shamai, L. Grova, I. Llach, J.B. Menassol, N. Debus and E. González-García</i>	213
15:00	Validation of a 3D imaging device to measure new morphological phenotype on ewes <i>L. Depuille, L. Delattre, A. Delpuech, M. Duval, T. Dechaux, T. Luginbuhl, E. Doutart, C. Valadier and J.M. Gautier</i>	213
15:15	Coffee break	
15:45	Animal-based indicators to improve small ruminant welfare using precision-livestock farming <i>M.C. Reeves, F. Kenyon, E.M. Baxter, J.E. Martin and C.M. Dwyer</i>	214
16:00	Monitoring post-weaning behaviour in Merinos d'Arles ewelambs at grazing with a walk-over-weighing <i>E. Leroux, I. Llach, G. Besche, J.-D. Guyonneau, O. Benoit, D. Montier, P.-M. Bouquet and E. González-García</i>	214
16:15	Sm@RT: small ruminant technology – PLF and digital technology for small ruminants <i>C. Morgan-Davies, J.M. Gautier, F. Kenyon, L. Grova, I. Halachmi, T.W.J. Keady, A. McLaren, V. Giovanetti, P. Piirsalu and E. Gonzalez-Garcia</i>	215
16:45	SmartPigHealth, flagship innovation experiment in the SmartAgriHubs project: outline and insights <i>J. Gerhardy, K. Weigelt, J. Aundrup, D. Staack, H. Nienhoff and H. Gerhardy</i>	215

## Session 15. Methods and practices to assess and improve animal welfare

Room: Forum

Chair: Ammer / Dantas de Brito Almeida

Session type: Theme session

	<b>Theatre Session 15</b>	<b>Book of Abstracts page</b>
13:30	Iceberg indicators for sow and piglet welfare <i>L. Friedrich, J. Krieter, N. Kemper and I. Czyncholl</i>	216
13:45	Tail posture as an early indicator of tail biting – a comparison of animal and pen level <i>V. Drexler, I. Ditttrich, S. Diers and J. Krieter</i>	216
14:00	Iceberg indicators for finishing pigs' welfare <i>K. Krugmann, J. Krieter, S. Meyer-Hamme, M. Gaulty, C. Kniese, C. Lambertz, L. Schrader and I. Czyncholl</i>	217
14:15	Animal welfare indicators for pigs – guideline and tools for on-farm self-assessment by farmers <i>S. Rauterberg, L. Schrader, R. Zapf, U. Schultheiß and A. Schubbert</i>	217
14:30	Smart animal health – data-driven planning of animal welfare inspections <i>T. Kuntzer, B. Thomann, G. Schuepbach and S. Rieder</i>	218
14:45	Smart animal health – health indicators for livestock <i>B. Thomann, H. Würbel, T. Kuntzer, B. Wechsler, C. Umstätter and G. Schüpbach-Regula</i>	218
15:00	Moving hens from cages to floor: is this an economically sustainable option? <i>M.Z. Kritsa, P. Simitzis, K. Tsiboukas, E.N. Sossidou and M. Goliomytis</i>	219
15:15	Coffee break	
15:45	Providing environmental enrichments affects activity and performance but not leg health in broilers <i>J.A.J. Van Der Eijk, R. Molenaar, M. Van Krimpen, H. Van Den Brand and I.C. De Jong</i>	219
16:00	Welfare assessment in veal calves fattened in 'outdoor veal calf' versus conventional operations <i>L. Moser, J. Becker, G. Schüpbach-Regula, S. Kiener, S. Grieder, N. Keil, E. Hillmann, A. Steiner and M. Meylan</i>	220

16:15	A model for economic impact of animal welfare improvements at slaughter of cattle and pig <i>J. Jerlström</i>	220
16:30	Effects of slaughtering methods on stress and <i>post mortem</i> changes in rainbow trout <i>F. Bordignon, A. Trocino, G. Xiccato, M. Birolo, F. Franchini, M. Bortoletti, E. Fiocchi, A. Manfrin and D. Bertotto</i>	221

### Poster Session 15

### Book of Abstracts page

15:12	Citizen's opinions regarding pig welfare conditions detected at ante-mortem inspections <i>D.L. Teixeira, L.C. Salazar, P. Carrasco, D. Enríquez-Hidalgo and M.J. Hötzel</i>	221
15:13	Location of burrows in housing: effects on their occupation rate and health of growing rabbits <i>Y. Huang, D. Savietto, D. Labatut, S. Pujol, J. Breda, S. Combes, T. Gidenne and L. Fortun-Lamothe</i>	222
15:14	Management practices associated with footpad dermatitis in turkey flocks <i>E.M. Leishman, N. Van Staaveren, B.J. Wood, A. Harlander and C.F. Baes</i>	222

## Session 16. Recent advances in omics technologies applied to small ruminants

Room: Sanada 1&2

Chair: Hernández-Castellano

Session type: Theme session

### Theatre Session 16

### Book of Abstracts page

14:30	Using an omics-based strategy to unravel seasonal weight loss tolerance in small ruminants <i>A.M. Almeida</i>	223
15:45	Liver transcriptomics of sensitive and heat-tolerant dairy goat phenotypes <i>A.A.K. Salama, S. González-Luna, M. Ramón, S. Serhan, X. Such, C. Díaz, M.J. Carabaño and G. Caja</i>	223
16:00	Single-step genetic evaluation of resistance to parasites in the Swiss Alpine goat population <i>A.M. Butty, F. Heckendorn, M. Spengeler, F.R. Seefried and B. Bapst</i>	224
16:15	Using proteomics to differentiate wool fibres in Portuguese sheep: two case studies <i>J.E. Plowman and A.M. Almeida</i>	224
16:30	Genome-wide characterization of performance resilience to climate volatility in dairy sheep <i>V. Tsartsianidou, E. Sánchez-Molano, V.V. Kapsona, Z. Basdagianni, D. Chatziplis, A. Argyriadou, G. Arsenos, A. Triantafyllidis and G. Banos</i>	225

### 16:15 Coffee break

16:45	Genomic inbreeding trends and the impact of ongoing selection in the Slovak Original Valachian sheep <i>M. Mészárosová, N. Moravčíková, M. Margetín, G. Mészáros and R. Kasarda</i>	225
17:00	Implementation of genomic selection in Norwegian Dairy goats increases breeding value accuracies <i>J.H. Jakobsen, K.G. Dodds, H.J. Baird, J.C. McEwan and T. Blichfeldt</i>	226
17:15	Variation in the CCR5 gene in Swedish goats <i>A.M. Johansson, S. Gunnarsson, H. Tiilikainen, T. Vanhala and E. Jonas</i>	226
17:30	Comparative rumen microbiomics of livestock breeds from Portugal and Africa <i>G. Forcina, S. Chalbi, L. Pérez-Pardal, A. Dos Santos, J.G. Vale Carvalheira, M. Djemali, A. Gaddour, S. Bedihaf-Romdhani and A. Beja-Pereira</i>	227
17:45	Genomics to breed sheep resistant to footrot <i>J. Storms, A. Wirth, M.L. Budnik, A.-K. Struck and O. Distl</i>	227

Poster Session 16		Book of Abstracts page
16.11	Sequence-based runs of homozygosity in goats reveal genetic changes associated with domestication <i>H. Signer-Hasler, J. Henkel, E. Bangarter, Z. Bulut, C. Drögemüller, T. Leeb and C. Flury</i>	228
16.12	Partitioning of genetic trends by flock in Istrian sheep breed <i>M. Spehar, J. Ramljak and A. Kasap</i>	228
16.13	Genetic diversity study in the Merino da Beira Baixa Portuguese sheep using SNP data <i>M.F. Santos-Silva, N. Carolino, P. Cardoso, C. Oliveira E Sousa, A.P. Jacob, I. Carolino and V. Landi</i>	229
16.14	Genetic differentiation of mainland-island Greek sheep: implications on detection of adaptive loci <i>A. Kominakis, E. Tarsani, A. Hager, I. Mastranestasis, D. Gkelia and I. Hadjigeorgiou</i>	229
16.15	Scan for signatures of selection in Russian fat-tailed sheep breeds via detection of ROH islands <i>T. Deniskova, A. Abdelmanova, A. Dotsev, H. Reyer, M. Selionova, M. Fornara, K. Wimmers, G. Brem and N. Zinovieva</i>	230

## Session 17. **Going beyond the Feed vs Food competition: crops and animals together to address food and nutrition security**

Room: Pischia + Parsenn  
Chair: O'Mara / Lee / Boland  
Session type: Challenge session

Theatre Session 17		Book of Abstracts page
14:30	Nutritional valorisation from plants to humans: towards One Nutrition? <b>invited</b> <i>R. Tijssens</i>	230
14:45	Adjusting feed efficiency methodologies to valorise inedible feed and biomass from marginal land <b>invited</b> <i>J.L. Peyraud and A. Mottet</i>	231
15:15	Evaluate the land-use efficiency of regional livestock systems from a food systems perspective <b>invited</b> <i>D. Hennessy, M. Schop, L. Shalloo and I.J.M. De Boer</i>	231
15:45	A partial life cycle assessment of smallholder livestock systems in Western Kenya <i>P.W. Ndung'u, T. Takahashi, C.J.L. Du Toit, M.R. Robertson-Dean, K.B. Butterbach-Bahl, G.A. McAuliffe, L. Merbold and J.P. Goopy</i>	232
16:00	Restoring or reinventing the virtuous cycle of crop-livestock integration? <b>invited</b> <i>S. Tarawali</i>	232
16:15	Coffee break	
16:45	Panel discussion: how to better re-implement synergies between crops and livestock farming? <i>J.L. Peyraud and M. Scholten</i>	233

## Session 18.

## Alpine, organic and grassland based cattle production

Room: Seehorn

Chair: Berard

Session type: Theme session

<b>Theatre Session 18</b>		<b>Book of Abstracts page</b>
14:30	Ideas & solutions for mountain livestock farming – the EAAP Working Group <i>A. Zuliani, G. Arsenos, A. Bernués, P. Dovc, M. Gaulty, Ø. Holand, B. Martin, C. Morgan-Davies, M.K. Schneider, W. Zollitsch and G. Cozzi</i>	233
15:00	The relationship of local Swiss cattle populations with other local breeds from the Alps <i>H. Signer-Hasler, A. Bagnato, B. Maitre, M. Vevey, B. Berger, M. Simčič, D. Boichon, A. Capitan, I. Medugorac, J. Bennewitz, G. Mészáros, J. Sölkner, C. Drögemüller and C. Flury</i>	234
15:15	Grazing with robust cattle breeds: an opportunity to sustainably use mountain grassland <i>C.M. Pauler and M.K. Schneider</i>	234
15:30	Dairy calves suckled by their dams: which compromise between animal performances and welfare? <i>M. Bouchon, A. Nicolao, E. Sturaro, B. Martin and D. Pomies</i>	235
15:45	Economic weights for beef production traits in three different fattening systems in Switzerland <i>J. Gearing, S. Kunz and P. Von Rohr</i>	235
16:00	Feed efficiency and digestibility values of three crossbreeds in fattening bulls <i>A. Frick, S. Lerch, R. Siegenthaler, A. Scheurer and I. Morel</i>	236
16:15 Coffee break		
16:45	Opinion: a new research approach is needed to secure viable mountain livestock (eco-)systems <i>invited C.M. Pauler, A. Bernués, G. Cozzi, M. Gaulty, Ø. Holand, T. Zanon and M.K. Schneider</i>	236
17:15	Reducing concentrate feeding in organic dairy cows with the help of body condition-monitoring <i>A. Spengler Neff, C. Von Däniken, S. Haug and S. Probst</i>	237
17:30	Replacing maize silage and concentrate by grass silage and corn-cob mix in beef cattle diets <i>M. Keller, M. Kreuzer, B. Reidy, A. Scheurer and K. Giller</i>	237
17:45	The use of haylage-based diets for fattening of young bulls and heifers <i>A.E. Francisco, A. Vaz-Portugal, E. Jerónimo, M.T. Dentinho, K. Paulos, J. Almeida and J. Santos-Silva</i>	238
18:00	Estimation of crossbreed beef carcass chemical composition by DXA scan of half-carcass or 11 <sup>th</sup> rib <i>C. Xavier, I. Morel, R. Siegenthaler, F. Dohme-Meier, Y. Le Cozler and S. Lerch</i>	238
18:15	Body composition estimation in cattle: comparison of imaging and adipose cell size methods <i>C. Xavier, C. Driesen, R. Siegenthaler, F. Dohme-Meier, Y. Le Cozler and S. Lerch</i>	239
<b>Poster Session 18</b>		<b>Book of Abstracts page</b>
18.13	Resumption of postpartal ovarian activity in herbage feeding systems of dairy cows <i>J.J. Gross, C. Kawashima, F. Dohme-Meier, A. Miyamoto and R.M. Bruckmaier</i>	239
18.14	Key figures of energy and protein metabolism in blood serum of suckler cows compared to winter feedi <i>H. Scholz, S. Jankowski, P. Kühne and G. Heckenberger</i>	240
18.15	Genetic background and rearing conditions: finding the best compromise to optimize meat quality <i>P. Silacci, I. Morel, B. Guggenbühl, J. Messadene, S. Dubois and S. Lerch</i>	240

18.16	Gestation length in Swiss Fleckvieh cows <i>A. Burren, E. Roesti, N. Berger and H. Joerg</i>	241
18.17	Prediction of cow diet composition using mid-infrared spectroscopy on milk <i>M. Coppa, B. Martin, S. Hulin, J. Guillemin, J.V. Gauzentes, A. Pecou and D. Andueza</i>	241

## Session 19.

## Young train – Innovative research and extension

Room: Wisshorn

Chair: Kuipers / Mielczarek

Session type: Early-career scientist's session

	Theatre Session 19	Book of Abstracts page
14:30	Let there be light – blue, red or white light for dairy cows <i>S. Lindkvist, E. Ternman, S. Ferneborg, B. Ekestén and S. Agenäs</i>	242
14:45	Effects of the novel concept 'outdoor veal calf' on antimicrobial use, mortality and weight gain <i>J. Becker, G. Schüpbach-Regula, A. Steiner, V. Perreten, D. Wüthrich, A. Hausherr and M. Meylan</i>	242
15:00	Feed characteristics and potential effects on rumen microbiome of ensiled seaweeds for dairy cows <i>Y. Yen, M.R. Weisbjerg, K. Viswanath and M. Novoa-Garrido</i>	243
15:15	Milk yield and fertility in a randomized controlled trial of extended voluntary waiting period <i>A. Edvardsson Rasmussen, C. Kronqvist, R. Båge and K. Holtenius</i>	243
15:30	Effect of milk $\beta$ -casein variants on cheese making traits <i>V. Vigolo, M. Franzoi, M. Penasa and M. De Marchi</i>	244
15:45	CNGB3 missense variant causes recessive day-blindness (achromatopsia) in Original Braunvieh cattle <i>I.M. Häfliger, E. Marchionatti, M. Stengard, S. Wolf-Hofstetter, J.M. Paris, J.G.P. Jacinto, C. Watté, K. Voelter, L.M. OcCelli, A.M. Komáromy, A. Oevermann, C. Goepfert, A. Borgo, R. Roduit, M. Spengeler, F.R. Seefried and C. Drögemüller</i>	244
16:00	Effects of a low protein diet with rumen protected Met, Lys and His on the performance of dairy cows <i>T. Van Den Bossche, L. Vandaele, J.L. De Boever, B. Ampe, C. Cirot, M. Rolland, J. De Sutter and K. Goossens</i>	245
16:15	Coffee break	
16:45	Do dairy cows feeding on organic wastes burp less methane? <i>M. Reichenbach, A. Mech and E. Schlecht</i>	245
17:00	Exploring the bovine colostrum microbiome in Holstein Friesian and double muscled Belgian Blue <i>I. Van Hese, K. Goossens, L. Vandaele and G. Opsomer</i>	246
17:15	Associations between udder health traits and milk protein fractions in Holstein cows <i>V. Bisutti, A. Vanzin, A. Toscano, S. Pegolo, E. Trevisi, P. Ajmone Marsan, R. Negrini and A. Cecchinato</i>	246
17:30	Milk microbiota investigation during and after summer Alpine transhumance and relation with cheese <i>G. Secchi, N. Amalfitano, A. Mancini, G. Bittante and E. Franciosi</i>	247
17:45	Modelling the impact of feeding strategies on greenhouse gas emissions using process-based models <i>L. Ouatahar, A. Bannink, G. Lanigan and B. Amon</i>	247
18:00	AEA enhanced bovine vascular endothelial cell barrier integrity during LPS challenge mediated by CB1 <i>C.C.F. Walker and L.M. Sordillo</i>	248

**Poster Session 19****Book of Abstracts page**

- 19:14  $\beta$ - $\kappa$ -casein haplotypes and its association with milk production traits in Spanish Holstein cows 248  
*O. Urrutia, J.A. Mendizabal and L. Alfonso*
- 19:15 Application of a bio-economic model for economic estimation of Lithuanian dairy breeds 249  
*Š. Marašinskienė, R. Šveistienė, B. Kosińska-Selbi, C. Schmidtman, M. Kargo, J.F. Ettema and V. Juškienė*

**Session 20.****Management of the sow and her litter**

Room: Sertig

Chair: Nilsson / Knol

Session type: Theme session

**Theatre Session 20****Book of Abstracts page**

- 14:30 Nutrition of hyperprolific sows to achieve survival and growth of their offspring 249  
**invited** *P.K. Theil*
- 15:00 Short-term fixation of sows in farrowing pens among different opening procedures 250  
*B.-M. Baude, K. Krugmann, S. Diers, E. Tholen and J. Krieter*
- 15:15 Modelling piglet pre-weaning mortality using litter records in technical management databases 250  
*A. Aubry, M. Klingler, P. Brenaut, A. Bouquet and B. Badouard*
- 15:30 Effects of the farrowing and rearing system on skin lesions, tail lesions and losses of piglets 251  
*A. Lange, C. Lambertz, M. Gauly, H. Janssen and I. Traulsen*
- 15:45 Water consumption of lactating sows 251  
*S.L. Thingnes, R. Sagevik, K. Ljøkjel, L.T. Bogevik and S. Kongsrud*
- 16:00 The effect of cross-fostering on pre- and post-weaning piglet performance 252  
*N.J.E. Stevens and M. Booijen*
- 16:15 Coffee break
- 16:45 The course of parturition and periparturient behaviour of sows to predict the expulsion of a piglet 252  
*C. Lensches, S. Ammer, A.L. Van Asten, J.T. Scholz and I. Traulsen*
- 17:00 PertMat: a new tool for automatic determination of risk factors and improvement in breeding 253  
*B. Badouard and S. Boulot*
- 17:15 Evaluation of point-of-care tests to characterize the vaginal discharge of sows after parturition 253  
*A. Grahofer, T. Mäder and H. Nathues*
- 17:30 Implementation of a pig toilet in a nursery pen with straw-bedded lying area 254  
*M. Tillmanns, K. Scheepens, N. Kemper and M. Fels*
- 17:45 Survey on farrowing management and reproductive performance in sows in a free farrowing system 254  
*L. Junker, S.E. Ulbrich and A. Grahofer*
- 18:00 Maternal effects of the leptin receptor gene in pigs 255  
*E. Solé, R. Ros-Freixedes, M. Tor, J. Reixach, R.N. Pena and J. Estany*

20.13	Urinary creatinine concentration in lactating sows in relation to body weight and amount of daily urine <i>H. Scholz, K. Stephan and M. Weber</i>	255
20.14	New functional traits in selection of the Czech dam pig breeds <i>Z. Krupová, E. Krupa, E. Žáková, M. Wolfová and J. Přebyl</i>	256
20.15	Survey on mycotoxin content in feed and colostrum from sows <i>P. Trevisi, D. Luise, F. Correa and P. Bosi</i>	256
20.16	Genetic evaluation for gestation length and stillborn piglets in Swiss Large White sows <i>N. Khayat-zadeh and A. Hofer</i>	257
20.17	Effect of an arginine supplementation in gestation and lactation on sow performances over two cycles <i>M. Girard, P. Stoll, M. Maikoff and G. Bee</i>	257
20.18	A 39, XYY-trisomy case found in a Minipig <i>R. Sánchez-Sánchez, P. De La Cruz Vigo, E. Gómez Fidalgo, S.S. Pérez-Garnelo, E. De Mercado and M. Martín-Lluch</i>	258
20.19	The impact of dietary potassium diformate on the milk yield in sows <i>C. Lückstädt and S. Petrovic</i>	258
20.20	Additive and dominant genomic analysis for litter size in pure and crossbreed Iberian pigs <i>H. Srihi, J.L. Noguera, V. Topayan, M. Martín-De-Hijas, N. Ibañez-Escriche, J. Casellas, M. Vázquez-Gómez, M. Martínez-Castillero, J.P. Rosas and L. Varona</i>	259
20.21	Reproductive effects in a boar with various C-Band polymorphisms <i>R. Sánchez-Sánchez, M. Martín-Lluch, E. Gómez Fidalgo, S.S. Pérez-Garnelo, E. De Mercado, J. Rubes, P. Musilova and P. De La Cruz Vigo</i>	259
20.22	Reproductive qualities of pigs of Irish selection in the conditions of industrial production in Ukraine <i>V. Ogloblia, N. Povod and O. Kravchenko</i>	260
20.23	Perfect condition at farrowing is necessary to maximize the performance of first parity sows <i>J. Hornstra</i>	260



# Scientific programme

## Tuesday 31 August

### Session 21.

#### Plenary session and Leroy Lectures

Room: Davos

Chair: Casasús

Theatre Session 21	Book of Abstracts page
8:30 Demands on the livestock sector – Engagement of the Swiss Government <b>invited</b> Adrian Aebi	
9:00 The role of livestock production in global food security <b>invited</b> A. Mottet	261
9:30 Animal products in healthy diets <b>invited</b> F. Leroy	261
10:00 Coffee break	
10:30 Sustainability in high producing animals <b>invited</b> J.H. Britt	262
11:00 Discussion	
11:30 Environmental responsibility of animal production: some answers to questions from society <b>invited</b> G. Bittante	262
12:00 Linearity, circularity, control, and robustness in biology and livestock production systems <b>invited</b> J. Van Milgen	263

### Session 22.

#### Breeding for improved animal health, welfare and longevity I

Room: Davos

Chair: Minozzi / Gardan

Session type: Theme session

Theatre Session 22	Book of Abstracts page
14:00 Robustness scores in pigs estimated from routine phenotypes: definition and genetic parameters <i>G. Lenoir, L. Flatres-Grall, N.C. Friggens, R. Muñoz-Tamayo and I. David</i>	263
14:15 How to breed successfully against tail biting – a simulation study in MoBPS <i>T. Pook, L. Büttgen, H. Simianer, H. Henne and A.R. Sharif</i>	264
14:30 Genetic parameters of piglet mortality in Danish organic pigs <i>T.T. Chu, R.M. Zaalberg, T.M. Villumsen and J. Jensen</i>	264
14:45 Functional longevity in Latxa dairy sheep breed <i>C. Pineda-Quiroga and E. Ugarte</i>	265
15:00 Genetic parameters for liveability traits in turkeys <i>B.C. Perez, J. Shaddick, S.A.S. Van Der Klein, K. Alves, M.C.A.M. Bink, A. Gueret and O.W. Willems</i>	265

15:15	Genetic and non-genetic effects on tail injuries in pigs <i>B. Zumbach, J. Dodenhoff, K.-U. Götz, H. Simianer and A.R. Sharifi</i>	266
15:30	Genetic parameters for birth weight and litter size in Danish organic pigs <i>R.M. Zaalberg, T.T. Chu, T.M. Villumsen and J. Jensen</i>	266
15:45 Coffee break		
16:15	Genetic analysis of novel behaviour traits in pigs derived from social network analysis <i>S. Agha, S. Foister, R. Roehe, S. Turner and A. Doeschl-Wilson</i>	267
16:30	Development of a new selection index for assessing the rearing performance of lactating sows <i>L.S. Trost, S. Ammer, S. Zeidler, J. Tetens and I. Traulsen</i>	267
16:45	Novel traits on the horizon: conceptual and theoretical aspects of Turkey breeding <i>C.F. Baes, R. Vanderhout, E. Leishman, E. Abdalla, N. Van Staaveren, B. Mankanjuola, S. Barbut, A. Harlander and B. Wood</i>	268
17:00	Genome-wide association study for resilience in growing pigs <i>H. Laghouaouta, R. Ros-Freixedes, M. Laplana, J. Estany, L. Fraile and R.N. Pena</i>	268
17:15	Preventing pathogen co-evolution when breeding animals for lower infectious disease prevalence <i>A.D. Hulst, P. Bijma and M.C.M. De Jong</i>	269
<b>Poster Session 22</b>		<b>Book of Abstracts page</b>
22.13	Relationship between somatic cell score and female fertility in Florida goat breed <i>C. Ziadi, R. Jiménez-Granado, M. Sánchez, M.D. López, E. Muñoz-Mejías and A. Molina</i>	269
22.14	Genetic trends in the behaviour of sows and piglets in early lactation <i>O. Girardie, C. Espinoza, C. Perry, M. Lapoumeroulie, J. Gogué, O. Herhel, J.P. Bidanel and L. Canario</i>	270
22.15	Total number born at 1 <sup>st</sup> and 2 <sup>nd</sup> parities are predictors of sow lifetime productivity development <i>L. Getmantseva, S. Bakoev, V. Shevtsova, A. Kolosov, F. Bakoev and M. Kolosova</i>	270
22.16	Embryo and foetal mortality in divergent selected lines for homogeneity in mice <i>N. Formoso-Rafferty, L. El-Ouazizi El-Kahia, J.P. Gutiérrez and I. Cervantes</i>	271
22.17	Comparison of the productivity and welfare of sows in individual stalls and group housing <i>Y.J. Min, Y.H. Choi, J.E. Kim, Y.D. Jeong, Y.H. Kim, D.W. Kim and H.J. Jung</i>	271
22.18	Genetic parameters of variability of piglet birth weight in Swiss Large White pigs <i>C. Kasper and G. Bee</i>	272
22.19	Repeatability of udder health and welfare traits of semi-extensively reared dairy goats in Greece <i>S. Vouraki, A.I. Gelasakis, V. Fotiadou, G. Banos and G. Arsenos</i>	272
22.20	Estimating the heritability of broiler activity throughout life as recorded by using an RFID system <i>E.D. Ellen, M. Van Der Sluis, Y. De Haas, B. De Klerk and T.B. Rodenburg</i>	273

Room: Aspen 1&amp;2

Chair: Friggens

Session type: Project session

Theatre Session 23		Book of Abstracts page
14:00	Resilience and efficiency in monogastrics: results from Feed-a-Gene <i>invited</i> J. Van Milgen, K.E. Bach Knudsen, A. Jansman, V. Halas, J. Pomar, H. Gilbert and G. Garrod	273
14:30	Impact of feed efficiency in young beef animals on adult resilience, from field challenge experiment <i>invited</i> P. Martin, G. Renand, D. Dozias, D. Maupetit and D. Villalba	274
15:00	Modelling GxE to find efficient, robust and resilient cattle <i>invited</i> B. Gredler-Grandl, M. Erbe, S. Aguerre, S. Mattalia, K.U. Goetz and M. Calus	274
15:30	Genotype by temperature-humidity index interactions on production in the Montbeliarde cattle breed A. Vinet, S. Mattalia, R. Vallée, C. Bertrand, P. Bertuzzi, E. Venot and D. Boichard	275
15:45 Coffee break		
16:15	Long-term impacts of selecting for resilience: combined genetic and systemic modelling <i>invited</i> M. Kargo, C. Bengtsson, N.C. Friggens, F. Ramirez-Agudelo, M. Slagboom, J.R. Thomasen and L. Puillet	275
16:45	Farm system characterization across Europe, and climate change impacts on farm system resilience <i>invited</i> S. Moakes, S. Quiédeville, C. Pfeifer and F. Leiber	276
17:00	Breeding for resilient dairy cattle – opportunities and challenges C.F. Baes, F. Schenkel, E. Goddard, G. Kistemaker, N. Van Staaveren, M. De Pauw, R. Cerri, M.A. Sirard, P. Stothard and F. Miglior	276
17:15	Validation of resilience indicators based on daily milk yield in dairy cows M. Poppe, H.A. Mulder, M.L. Van Pelt and R.F. Veerkamp	277
17:30	Analysis of milk solid production and mid-lactation bodyweight to evaluate cow lactation efficiency S.H. Evers, S. MacParland, L. Delaby, K.M. Pierce and B. Horan	277
Poster Session 23		Book of Abstracts page
23.10	Milk natural isotopic composition, feed efficiency, and body mobilization in early lactation C. Loncke, J. Pires, H. Fouillet, D. Sauvant, M. Bonnet, C. Eyma, V. Mathé, N. Khodorova, S. Bes, M. Turrett, P. Schmidely and G. Cantalapiedra-Hijar	278
23.11	Heart rate of grazing Hereford heifers classified by paternal RFI M.F. Marín, H. Naya, T. Devincenzi, E.A. Navajas, A.C. Espasandín and M. Carriquiry	278
23.12	Climate effects on birth weight environmental variability in a divergently selected mice population L. El-Ouazizi El-Kahia, N. Formoso-Rafferty, I. Cervantes and J.P. Gutiérrez	279
23.13	Beef cattle with superior feed conversion efficiency present higher whole-body protein turnover P. Guarnido-Lopez, I. Ortigues-Marty, L. Salis, C. Chantelauze, P. Faure and G. Cantalapiedra-Hijar	279

Room: Schwarzhorn

Chair: Bloch / Druyan

Session type: Project session

<b>Theatre Session 24</b>		<b>Book of Abstracts page</b>
14:00	CowBhave open-source acceleration tag hardware and firmware for cow behaviour monitoring <i>V. Bloch, C. Arcidiacono, M. Mancino and M. Pastell</i>	280
14:15	Using deep neural networks to detect cow behaviour from CowBhave accelerometer collar <i>M. Pastell, V. Bloch, L. Frondelius, M. Mughal, M. Mancino and C. Arcidiacono</i>	280
14:30	Effect of sward height on the behaviour of grazing dairy cows <i>E. Paulenz, L. Gyax, K. Barth and E. Hillmann</i>	281
14:45	Detecting feed scarcity on pasture by a drop in milk yield and behavioural changes of grazing cows <i>L. Hart, U. Dickhoefer and C. Umstaetter</i>	281
15:00	Digital monitoring technologies – from supply to implementation on Swiss farms <i>C. Umstätter, T. Groher and J. Stachowicz</i>	282
15:15	How are animal health monitoring tools used – the point of view of French livestock farmers <i>C. Manoli, T. Gambarà, S. Di Bianco, A. Sigwalt, N. Bareille, P. Kaufmann and A. Wache</i>	282
15:30	Value creation for animal health and welfare by real time surveillance (FAS) in broiler production <i>J. Hartung, S. Rautenschlein, C. Suerie, C. Visscher and O. Distl</i>	283
15:45 Coffee break		
16:15	Development and use of insemination values to aid decision-making in precision dairy breeding <i>A. De Vries, P. Pinedo and N. Bliznyuk</i>	283
16:30	GPS tracking indicates high variability in grazing patterns of lactating cows in Alpine summer farms <i>S. Raniolo, M. Ramanzin and E. Sturaro</i>	284
16:45	Lean start-up principles in the development of walk over weight system for outdoor reared pigs <i>M. Odintsov Vaintrub, G. Mastromatteo and G. Marruchella</i>	284
17:00	Machine learning algorithms can predict tail biting outbreaks in pigs using feeding behaviour records <i>C. Ollagnier, C. Kasper, A. Wallenbeck, L. Keeling and S.A. Bigdeli</i>	285
<b>Poster Session 24</b>		<b>Book of Abstracts page</b>
24.12	Education to enhance knowledge on precision livestock farming to improve livestock sector competence <i>A. Herlin, O. Guzhva and G. Löe</i>	285
24.13	Body condition monitoring in dairy farms: survey among farmers and advisors of West France <i>T. Petit, M. Lamarre, J. Fagon and C. Dezetter</i>	286
24.14	A data infrastructure that automatically collects animal identification real time <i>I. Hulsegge, E. Ellen, G. Seiger, M. Afonso and C. Kamphuis</i>	286
24.15	CowBhave project: open-source accelerometer-based systems for dairy behaviour monitoring <i>C. Arcidiacono, M. Mancino, S.M.C. Porto, G. Cascone, V. Bloch and M. Pastell</i>	287
24.16	CowBhave system components for automated cow behaviour discrimination from accelerometers at the leg <i>C. Arcidiacono, M. Mancino, S.M.C. Porto, V. Bloch and M. Pastell</i>	287

## Session 25.

# Sustainable livestock farming in mountain areas and harsh environments – challenge or opportunity?

Room: Jakobshorn  
Chair: Pouloupoulou  
Session type: Theme session

<b>Theatre Session 25</b>		<b>Book of Abstracts page</b>
14:00	Sustainable productivity of livestock in European and Asian alpine grassland: a case study roadmap <i>F. Leiber, A. Mukaliev and A. Vitra</i>	288
14:30	Two-decade evolution of livestock farming systems in Mediterranean arid rangelands <i>H. Rjili, E. Muñoz-Ulecia, A. Bernués, M. Jaouad and D. Martín-Collado</i>	288
14:45	Robust breeds grazing green alder: integrating meat production and biodiversity conservation <i>M.K. Schneider, T. Zehnder, J. Berard, C. Pauler, M. Kreuzer and A. Lüscher</i>	289
15:00	Milk yield and quality of Original Brown cattle reared in Italian alpine region <i>T. Zanon, S. König and M. Gauly</i>	289
15:15	How do suckling dairy calves impact their dams' milk production – insights from the Ladybug project <i>M. Bouchon and D. Pomies</i>	290
15:30	How the presence of pig enterprise improves the sustainability of French mountain cattle farms? <i>C. Mosnier, S. Boukhriess and J.J. Minviel</i>	290
15:45	Coffee break	
16:15	Indicators to assess the sustainability of sheep and goat farming systems on Epirus mountains <i>D. Tsiokos, M.A. Karatzia, E.N. Sossidou and C. Ligda</i>	291
16:30	Sheep/cattle mixed grazing: parasitism dilution improves sheep growth more than grazing facilitation <i>F. Joly, M. Benoit, P. Note and B. Dumont</i>	291
16:45	Sustainable control of gastrointestinal parasites in goats of hilly areas of Jammu (India) <i>M. Azad and K. Kour</i>	292
17:00	Genetic improvement of alpacas and llamas in Peru <i>G. Gutierrez, A. Cruz, J.P. Gutierrez and M. Wurzinger</i>	292
<b>Poster Session 25</b>		<b>Book of Abstracts page</b>
25.11	Attitudes of Peruvian llama farmers towards genetic improvement <i>M. Wurzinger, C. Silva, J. Candio, A. Cruz, E. Quina and G. Gutiérrez</i>	293
25.12	The future of llama keeping in Peru: a sustainability assessment <i>D. Luque, J. Candio, G. Gutiérrez and M. Wurzinger</i>	293

## Session 26.

## Regulatory framework and advances in genetics and genomics of farmed insects

Room: Forum

Chair: Sandrock / Lefebvre

Session type: Theme session

Theatre Session 26		Book of Abstracts page
14:00	Opportunities for the insect sector under the European Union (EU) regulatory framework <i>invited</i> C. Muraru, C. Derrien, M. Beiter and A. Grassi	294
14:30	A roadmap for black soldier fly breeding and genetics <i>invited</i> G. Gorjanc, L. Letica, I. Pocrnic, S. Grainger and T. Farrugia	294
15:00	Deciphering the evolutionary history of the black soldier fly, <i>Hermetia illucens</i> , on a global scale C. Sandrock, C. Kaya, M. Kapun, J. Wohlfahrt and W.U. Blanckenhorn	295
15:30	Comparison of pedigree genetic evaluation methods for black soldier fly breeding L.A.C. Lara, I. Pocrnic, S. Grainger, T. Farrugia and G. Gorjanc	295
15:45 Coffee break		
16:15	Revivable eggs by cryopreservation for insect production enhancement A. Gligorescu, C. Fischer, S. Chen, A. Baumann, Y. Politi, I. Alyagor and Y. Gilad	296
16:30	Female-biased sex ratio in production colonies of the common housefly, <i>Musca domestica</i> L. Francuski, G. Petrucci, J. Beerda, W.L. Jansen and L.W. Beukeboom	296
16:45	Molecular and phenotypic polymorphism in <i>Tenebrio molitor</i> : how to characterize strains? E. Evangelina, K. Labadie, B. Vacherie, J.-M. Aury, M. Ali-Agha, Q. Li, A. Rios, M.-A. Madoui and T. Lefebvre	297
17:00	Utility of pooled whole-genome sequences to determine genomic inbreeding in honey bees M. Guichard, A. Gmel, B. Dainat, S. Eynard, A. Vignal, B. Servin, The Beestrong Consortium and M. Neuditschko	297
Poster Session 26		Book of Abstracts page
26.09	Why and how to estimate genetic parameters for black soldier flies? A.C. Bouwman, D. Wongso, B.A. Pannebakker, B.J. Zwaan and E.D. Ellen	298

## Session 27.

## Sustainability and human health aspects of dairy and meat products and substitutes

Room: Sanada 1&2

Chair: De Vries / Hocquette

Session type: ADSA session

Theatre Session 27		Book of Abstracts page
14:30	Chinese consumers' perspective and potential acceptance toward artificial meat <i>invited</i> J. Liu, E. Hocquette, M.P. Ellies-Oury, S. Chriki and J.-F. Hocquette	298
15:00	Feasibility of circular food systems leveraging beef and dairy cattle <i>invited</i> R.R. White	299
15:30	Effect of quarantine on <i>post mortem</i> performances of Charolaise young bulls M. Santinello, A. Diana, A. Goi, M. De Marchi, F. Scali, G.L. Alborali, L. Bertocchi, E. Pellattiero and M. Penasa	299

15:45	Multivariate analysis of nutritional profile of human milk compared with milk from 6 farm species <i>N. Amalfitano, N. Patel, M.L. Haddi, H. Benabid, M. Pazzola, G.M. Vacca, A. Lante, F. Tagliapietra, S. Schiavon and G. Bittante</i>	300
16:00	Effects of multiple grass-fed and grain-fed beef systems on fatty acid composition <i>S.C. Klopatek, X.Y. Xiang, J.W. Oltjen and P. Vahmani</i>	300
16:15	Coffee break	
16:45	Prediction of cheese-making properties of bulk milk according to farming practices <i>L. Rey-Cadilhac, C. Laurent, M. Gelé, C. Laithier, S. Léger and A. Ferlay</i>	301
17:00	The future of the meat industry and of meat substitutes in China <i>J.J. Liu, M.P. Ellies-Oury and J.F. Hocquette</i>	301
17:15	Insight into the genetic background of sialic acid metabolism in bovine milk <i>M. Milanese, C. Marchitelli, M. Contò, D. Pietrucci, G. Chillemi and A. Crisà</i>	302
17:30	Effect of supplementation of dairy cow with fat encapsulated linseed oil on milk fatty acids <i>T. Fernandes, M.C. Aires, G. Pereira, R. Bexiga, S.P. Alves, L. Lopes-Da-Costa and R.J.B. Bessa</i>	302
17:45	Specific heat treatment reduced ruminal biohydrogenation of oilseeds and improved milk fat profile <i>C. Gerard, A. Lebrun and K. Gragnic</i>	303

	<b>Poster Session 27</b>	<b>Book of Abstracts page</b>
27.11	The concentration of major minerals in bovine bulk milk can be predicted using infrared spectroscopy <i>M. De Marchi, M. Franzoi, A. Costa, M. Simoni, F. Righi, A. Revello Chion, S. Ton and D. Giaccone</i>	303
27.12	Prediction of milk quality lipid indices in sheep using partial least squares regression <i>F. Correddu, A. Cesarani and N.P.P. MacCiotta</i>	304
27.13	Feasibility of pocket-sized near-infrared spectrometer for the prediction of cheese quality traits <i>C.L. Manuelian, M. Ghetti, C. De Lorenzo, M. Pozza, M. Franzoi and M. De Marchi</i>	304
27.14	Meat quality of beef obtained from Wagyu bulls fed a diet supplemented with Se and vitamin E <i>T. Chovancová, M. Černošková, S. Malyugina, M. Orság, B. Záborská, J. Kašparová and A. Faltusová</i>	305
27.15	Can dietary linolenic acid increase t11-18:1 and c9t11-18:2 in meat of lambs fed cereal based diets? <i>S.P. Alves, B. Grafanheite, A. Francisco, J. Santos-Silva and R.J.B. Bessa</i>	305
27.16	Early metabolic imprinting of Hanwoo with rumen protected fat increased beef quality at slaughter <i>R. Bharanidharan, K. Thirugnanasambantham, N. Kim, J. Kim, S.H. Beak, S. Choi, G.D. Kim and K.H. Kim</i>	306

## Session 28. Evolutions and latest developments in equine production and management

Room: Pische + Parsenn

Chair: Auclair-Ronzaud / Cox / Mantovani / Vial / De Palo

Session type: Theme session

	<b>Theatre Session 28</b>	<b>Book of Abstracts page</b>
14:30	Equine registration system and (non)use of horsemeat for human consumption: a survey in EU countries <i>invited C. Vial, A.S. Santos, R. Evans, F. Gras and K. Potočník</i>	306
15:00	Equine end of life in Europe <i>invited M. Uldahl</i>	307

15:30	Self-organized equine users: key factors and value of professional services <i>C. Eslan, C. Vial and S. Costa</i>	307
15:45	Hay preferences in horses versus selection by their owners <i>S. Holzer, C. Herholz, L. Tanadini, S. Ineichen and S. Juilland</i>	308
16:00	Influence of two feeding managements on behaviour and welfare in horses reared for meat production <i>F. Raspa, I. Vervuert, P. De Palo, D. Cavallini, D. Bergero, E. Valvassori and E. Valle</i>	308

#### 16:15 Coffee break

16:45	An international comparison of prevalence of headshaking syndrome in horses <i>L.M. Stange, J. Krieter and I. Czycholl</i>	309
17:00	Character testing in Haflinger horses <i>T. Zanon, S. Gruber and M. Gaily</i>	309
17:15	Determining objective kinematic parameters to assess ground coverage in Franches-Montagnes horses <i>A.I. Gmel, E.H. Haraldsdottir, F.M. Serra Bragança, A.M. Cruz, M. Neuditschko and M.A. Weishaupt</i>	310
17:30	Traits of interest in performance recording harmonisation of Equus genus – survey results <i>M. Spehar, G. Polak, A.S.G. Santos, R. Mantovani, E. Salimei and K. Potočník</i>	310
17:45	Recent demographic history and genetic diversity in Martina Franca donkey population <i>V. Landi, E. Ciani and P. De Palo</i>	311

#### Poster Session 28

#### Book of Abstracts page

28.11	Preventive compression measures on horses' front legs during resting affected surface temperature <i>M. Hennemann, S.M. Schmid and J. Steinhoff-Wagner</i>	311
28.12	The chicory: a potential crop against summer drought for horses <i>M. Valleix, M. Brossier and L. Wimmel</i>	312
28.13	Effect of grazing on subcutaneous fat distribution in foals by ultrasound assessment <i>M.V. Sarriés, A. Cittadini, J.M. Lorenzo, G. Indurain, J.L. Saez and R.M. Canals</i>	312
28.14	Impact of essential oils on insulin sensitivity and the metabolome of insulin dysregulated horses <i>C.M.M. Loos, E.S. Vanzant, W. Han, S. Zhao, J. Li, L. Li, A.D. Bohannon, K.L. Urschel and K.R. McLeod</i>	313
28.15	Mare's udder secretory capacity from 3 days to 6 months of lactation <i>J. Auclair-Ronzaud, C. Dubois and L. Wimmel</i>	313
28.16	Times between foaling and the first standing and suckling of the new-born foal <i>L. Wimmel, C. Pégourie, M. Valleix and J. Auclair-Ronzaud</i>	314
28.17	Whether the mares milking process stresses the mares ? <i>G.M. Polak</i>	314
28.18	Distribution of minor trace elements in different fractions of donkey milk <i>F. Fantuz, S. Ferraro, L. Todini, R. Spurio, A. Fatica, F. Marcantoni and E. Salimei</i>	315
28.19	Oxidative stability and volatolomic profile of dry vs vacuum aged horse meat <i>P. De Palo, M. Faccia, G. Natrella, J.M. Lorenzo and A. Maggolino</i>	315



## Session 29.

## So you think your science is so great

Room: Seehorn  
Chair: Keatinge  
Session type: Theme session

Theatre Session 29		Book of Abstracts page
14:30	Role of the researcher in facilitating innovation <i>invited</i> P. Galama	316
15:00	Fostering impacts through interdisciplinary science approaches with multi-stakeholder involvement <i>invited</i> M. Vaarst	316
15:30	Reaping the rewards of livestock science at grassroots level <i>invited</i> R. Keatinge	317
16:00 Coffee break		
16:30	BovINE: beef innovation network Europe <i>invited</i> R. Desmet, K. Goossens, R. Lynch and M. Henchion	317
17:00	PROTECOW: French-Belgian exchange on cost efficient replacement of soybean meal in dairy diets <i>invited</i> L. Vandaele, L. Boulet, M. Lamérand, B. Verrielle, E. Decaestecker, S. Fourdin, S. Hennart, E. Froidmont and B. Rouillé	318
17:30	Creation of a semantic resource responding to the principles of open science for the meat sector M. Kombolo, S. Aubin, J. Yon, F. Landrieu, B. Richon and J.F. Hocquette	318
17:45	Prediction of marbling score in slaughterhouse using a pocket-sized near-infrared spectrophotometer M. Kombolo, A. Goi, D. Andueza, J. Liu, A. Neveu, P. Faure, L. Thoumy, C. Cogneras, M. De Marchi and J.-F. Hocquette	319
18:00	New grading systems of beef to ensure consumer satisfaction and farm gate returns to producers J.F. Hocquette and R. Polkinghorne	319
18:15	Assessment of needs for data integration and digitalisation in Austrian dairy cattle farms F. Grandl, F. Steininger, M. Stegellner, M. Drillich, M. Koblmüller and C. Egger-Danner	320

## Session 30.

## Young EAAP – opportunities for early career scientists

Room: Wisshorn  
Chair: Wallgren / Adriaens / Pszczola  
Session type: Early-career scientist's session

## Session 31.

## ANIMAL NUTRITION 4.0

Room: Studio  
Chair: Pinotti / Ranilla García  
Session type: Industry session

Theatre Session 31		Book of Abstracts page
14:30	Animal nutrition strategies to cope with EU Green Deal: GMO, additives and novel feeds <i>invited</i> G. Savoini, L. Pinotti, A. Agazzi, M. Innocenti and M. Ardizzone	320
15:00	Duckweed as fishmeal-protein replacement for omnivorous and carnivorous fish fry T. Stadlander, D. Roskothen, F. Tschudi, A. Seitz, M. Sigrist, C. Pietsch and F. Leiber	321
15:15	Inclusion of silage in pig diets – effect on production and health J. Friman, T. Lundh and M. Åkerfeldt	321

15:30	Winery by-products as a functional feed to modulate ruminal fermentation <i>in vitro</i> <i>R. Khiaosa-Ard, M. Mahmood, E. Mickdam and Q. Zebeli</i>	322
15:45	Effect of forage source and processing conditions of fava bean on amino acid digestion in dairy cows <i>W.J. Wang, P. Lund, M. Larsen and M.R. Weisbjerg</i>	322

### 16:15 Coffee break

16:45	Novel concepts and methodologies in assessing sustainability in livestock farming: One nutrition <b>invited</b> <i>K. Spáčilová and R. Tijssens</i>	323
17:15	Impact of dietary protein content and methionine supplementation in dairy ewes in early lactation <i>G. Caja, A. Elhadi, M.E. Rodriguez-Prado, A. Belaid, X. Such, L. Bahloul and S. Calsamiglia</i>	323
17:30	Replacement of soybean meal with poultry-based processed animal proteins in weaned pigs <i>R. Davin, J. Van Baal and P. Bikker</i>	324
17:45	Giving a second life to food waste: what to expect from the use of former foodstuff in animal feed? <i>M.C. Lecrenier, O. Fumière and V. Baeten</i>	324

### Poster Session 31

### Book of Abstracts page

31.10	Effects of maize kernel particle size on the gas production kinetics <i>in vitro</i> of maize silage <i>I. Ansia, R. Walvoort, A. Santos, H. Van Laar and W. Pellikaan</i>	325
31.11	Replacement of soybean meal with poultry based processed animal proteins in growing pigs <i>R. Davin and P. Bikker</i>	325
31.12	Growth performance of Large White × Landrace crossbred pigs fed diets containing Marula nut meal <i>R.S. Thomas, P.M. Mabena, F.Y. Hlongwana, O.G. Makgothi and B.D. Nkosi</i>	326
31.13	Effects of dietary inclusion of <i>Spirulina platensis</i> on the reproductive performance of female minks <i>A.M. Iatrou, G. Papadopoulos, G. Banos, T. Poutahidis, A.G. Lympelopoulos and P. Fortomaris</i>	326
31.14	Proposition for a concept to exploit alfalfa as protein source for monogastric animals <i>L. Blume, S. Hoischen-Taubner and A. Sundrum</i>	327
31.15	A review on how local amino acid solutions can support the achievement of the EU Green Deal targets <i>N.M. Martin and S. Fontaine</i>	327
31.16	Ileal amino acids digestibility in organic protein feedstuffs for pigs <i>D. Renaudeau, D. Gaudré, H. Juin and A. Roinsard</i>	328
31.17	Metabolizable methionine balanced diets improved Lacaune dairy ewe performance <i>F. Francia, A. Kihal, M.R. Rodriguez-Prado, G. Caja, X. Such, L. Bahloul and S. Calsamiglia</i>	328
31.18	Nutritive value and palatability of microalgae species in dog feeding <i>J.G. Fernandes, M. Spínola, T. Aires, J.L. Silva, A.J.M. Fonseca, S.A.C. Lima, M.R.G. Maia and A.R.J. Cabrita</i>	329
31.19	Quantification of unvalorised protein based on two methodologies evaluating protein self-sufficiency <i>C. Battheu-Noirfalise, R. Liroy, E. Reding, L. Echevarria, A. Berchoux, S. Hennart, M. Mathot, V. Decruyenaere and D. Stilmant</i>	329
31.20	Using cauliflower in dairy sheep feeding: effect on blood biochemical profile <i>I. Mateos, C. Saro, F.J. Giráldez, S. López and M.J. Ranilla</i>	330
31.21	Cauliflower as a by-product in dairy sheep feeding: effect on milk production and composition <i>I. Mateos, C. Saro, F.J. Giráldez, S. López and M.J. Ranilla</i>	330

31.22	Nitrogen discharge reduction in fattening cattle by a dietary blend of essential oils and spices <i>J.F. Gabarrou and G. Desrousseaux</i>	331
31.23	Rumen protected lysine improved serum lysine status in Fleckvieh bulls fed a nitrogen deficient diet <i>F. Riepl, S. Kuenz, D. Brugger, K. Kleigrew, W. Windisch, H. Spiekers and T. Ettl</i>	331
31.24	A novel ammonia treatment of barley to optimize rumen function in sheep <i>A. Belanche, A.I. Martin-Garcia, E. Jimenez, N. Jonsson and D.R. Yanez-Ruiz</i>	332
31.25	Inclusion of olive cake in the diet of Rusitec fermenters: effect on archaeal community <i>C. Saro, I. Mateos, M.D. Carro and M.J. Ranilla</i>	332
31.26	Effects of replacement of soybean meal with peas on fatty acid composition in growing turkeys <i>V. Juskiene, R. Juodka, R. Nainiene and R. Juska</i>	333
31.27	Interaction between season and feeding level or amino acid supplies on pigs' growth performance <i>N. Quiniou, D. Renaudeau and G. Daumas</i>	333
31.28	<i>In vitro</i> cell oxidative protection, improved fermentation and <i>Salmonella</i> mitigation via a postbiotic <i>V. Nsereko, A. Brainard, T. Weigand, J. Lin and F. Ysunza</i>	334
31.29	Calculation of digestibility parameters in laying hens using NIR on faecal samples <i>G.C.B. Schopen, C. Noordijk, E. Leentfaar, D. Schokker, M.C.A.M. Bink and E.D. Ellen</i>	334
31.30	Faecal near-infrared spectral data as a tool to predict digestibility in pigs <i>S.E. Wallén, K.H. Martinsen, G.T. Gebregiwegis, N.K. Afseth, E. Grindflek and T.H.E. Meuwissen</i>	335
31.31	Digestibility and palatability of algal blend in dogs <i>C.S.C. Mota, M. Spinola, A.R.J. Cabrita, H. Abreu, J. Silva, A.J.M. Fonseca and M.R.G. Maia</i>	335
31.32	Digestibility of grass fibre increased by screw pressing in a bio-refinery <i>N.P. Hansen, M.R. Weisbjerg, M. Johansen and S.K. Jensen</i>	336

## Session 32.

## Meat and fat quality in broilers and finishing pigs

Room: Sertig

Chair: Bee / Stadnicka

Session type: Working group session

	<b>Theatre Session 32</b>	<b>Book of Abstracts page</b>
14:30	Improving pork quality by means of breeding – a Swiss perspective <i>M.R.L. Scheeder</i>	336
15:15	Combining genetic and nutritional strategies improve the intrinsic and extrinsic qualities of pork <i>B. Lebret, S. Lhuisset, E. Labussiere, A. Connan and I. Louveau</i>	337
16:00	Multicriteria performance of fattening pigs assessed with the bioclimatic model ThermiPig <i>N. Quiniou, A. Cadéro, M. Marcon and L. Brossard</i>	337
16:15	Coffee break	
16:45	Effect of high ambient temperature on carcass composition of pigs slaughtered at the same age <i>G. Daumas, A.M. Serviento, M. Monziols and D. Renaudeau</i>	338
17:00	Effect of restricted feeding or amino acid deficiency on the muscle content of pig carcasses and cuts <i>G. Daumas, M. Monziols and N. Quiniou</i>	338

17:15	Muscle and backfat thickness in Bísaro pigs with different immunocastration protocols <i>S. Botelho-Fontela, G. Matos, M. Almeida, C. Castelo, G. Paixão, R. Payan-Carreira, A. Esteves and S. Silva</i>	339
17:30	Last supper – the effect of feed intake before slaughter on pork quality traits <i>C. Neubert, N. Khayatzaheh, R. Zurkirch and M.R.L. Scheeder</i>	339
17:45	Effect of malted wheat and varying dietary phosphorus supply on bone mineral status of broilers <i>S. Kuenz, W. Windisch, K. Damme and D. Brugger</i>	340

### Poster Session 33

### Book of Abstracts page

32.09	The quality and health-promoting value of meat from pigs of the Złotnicka Spotted breed <i>M. Szyndler-Nędza, M. Świątkiewicz, Ł. Migdał and W. Migdał</i>	340
32.10	Health and performance data in professional Swiss meat rabbit production <i>J. Schwarz, J. Schädler, S. Albini, J. Peter-Egli, S. Probst, G. Schüpbach and D. Wiederkehr</i>	341
32.11	Genomic regions affecting body size related traits in two pig populations <i>H. Signer-Hasler, A. Nosková, H. Pausch, A. Hofer and C. Flury</i>	341
32.12	Effect of swine immunocastration on salts and volatile compounds of Teruel dry-cured hams <i>L. Pérez-Ciria, M.A. Sanz, M. Blanco, G. Ripoll, J. Álvarez-Rodríguez, F.J. Miana-Mena and M.A. Latorre</i>	342
32.13	Effects of immunocastration protocols in the meat quality of female Bísaro pigs <i>S. Botelho-Fontela, S. Ferreira, M. Almeida, C. Castelo, G. Paixão, R. Payan-Carreira, S. Silva, A. Esteves and J. Silva</i>	342
32.14	Carcass traits of two commercial broiler strains fed diet supplemented with essential oil <i>M. Obeidat, B. Nusairat and B. Obeidat</i>	343
32.15	Association (ACLY) gene polymorphism and fattening, slaughter and pork quality traits in Polish pigs <i>A. Terman, D. Polasik, M. Tyra, M. Szyndler-Nędza and G. Żak</i>	343
32.16	Thermography to assess testicular temperature in immunocastrated bísaro pigs <i>M. Almeida, S. Botelho-Fontela, S. Ferreira, C. Castelo, G. Paixão, R. Payan-Carreira, A. Esteves and S. Silva</i>	344
32.17	Preparation for identification of ATAC-seq signals associated with high fat level in Złotnicka White <i>K. Piórkowska, W. Witarski, K. Kruczek, K. Ropka-Molik, M. Tyra, M. Szyndler-Nędza and G. Żak</i>	344
32.18	<i>Salmonella</i> and parasites in French alternative pig farms: first results in 35 herds <i>M. Delsart, J.M. Repérant, A. Kerouanton, M. Denis, M. Souquière, B. Dufour, N. Rose, F. Pol and C. Fablet</i>	345
32.19	Xanthohumol reduces incidence of white striations and affects tissue oxidative status in broilers <i>J. Michiels, J. Degroote, C. Van Kerschaever, E. Van Liefferingen, M. Vandaele and M. Majdeddin</i>	345
32.20	Impact of swine immunocastration on fat quality of Teruel dry-cured hams <i>L. Pérez-Ciria, G. Ripoll, M. Blanco, J. Álvarez-Rodríguez, F.J. Miana-Mena and M.A. Latorre</i>	346
32.21	Assessment of an <i>in vivo</i> method for measuring <i>de novo</i> lipogenesis using stable isotopes in pigs <i>H.H. Salgado, H. Lapierre, M.P. Létourneau-Montminy and C. Pomar</i>	346
32.22	Intra- and inter-observer reliability when assessing white striping in turkey breast muscle <i>N. Van Staaveren, R. Vanderhout, E. Leishman, H. Hiscock, E.A. Abdalla, B. Makanjuola, S. Barbut, A. Harlander, B.J. Wood and C.F. Baes</i>	347

# Scientific programme

## Wednesday 1 September

### Session 33. Breeding for improved animal health, welfare and longevity: cattle II

Room: Davos

Chair: Poppe / Minozzi

Session type: Theme session

Theatre Session 33		Book of Abstracts page
8:00	A major QTL at LHCGR for multiple birth in Holstein cattle <i>S. Widmer, F.R. Seefried, P. Von Rohr, I.M. Häfliger, M. Spengeler and C. Drögemüller</i>	347
8:15	Selection against infectious diseases: genetic variation and response to selection <i>P. Bijma, A. Hulst and M.C.M. De Jong</i>	348
8:30	Genetic relationships between multiple ketosis related traits in Swiss Brown Swiss dairy cattle <i>U. Schuler, L.M. Dale and S. Wegmann</i>	348
8:45	Prevalence of known recessive disease alleles in Italian beef cattle <i>J.G.P. Jacinto, A. Gentile, F. Sbarra and C. Drögemüller</i>	349
9:00	Resilience indicators calculated from daily activity in dairy cows <i>M. Poppe, H.A. Mulder, E. Mullaart and R.F. Veerkamp</i>	349
9:15	Do we really breed for healthier cows, and can we do better? <i>H. Simianer, D. Foster, S. Rensing, J. Heise and C. Reimer</i>	350
9:30	Exploiting massive genotyping and sequencing data to improve fertility in Swiss dairy cattle <i>I.M. Häfliger, F.R. Seefried and C. Drögemüller</i>	350
9:45 Coffee break		
10:15	Impact of Holstein haplotypes <i>J.B.C.H.M. Van Kaam, M. Marusi and M. Cassandro</i>	351
10:30	New insights into resistance to paratuberculosis from sequence-based GWAS in Holstein cattle <i>M.-P. Sanchez, R. Guatteo, A. Delafosse, A. Davergne, C. Grohs, P. Blanquefort, A. Joly, L. Schibler, C. Fourichon and D. Boichard</i>	351
10:45	Is longevity still needed in dairy cattle breeding goals? <i>C. Schmidtmann, G. Thaller and M. Kargo</i>	352
11:00	Across countries genomic prediction using national breeding values versus MACE breeding values <i>M. Sallam, H. Benhajali, S. Savoia, D.J. De Koning and E. Strandberg</i>	352
11:15	Mapping of multiple loci affecting rearing success in four Swiss dairy cattle populations <i>M. Spengeler, M. Berweger, S. Widmer, I.M. Häfliger, C. Drögemüller and F.R. Seefried</i>	353
11:30	Genetic evaluation of a novel longevity indicator for North American Angus cattle <i>H.R. Oliveira, L.F. Brito, S.P. Miller and F.S. Schenkel</i>	353
Poster Session 33		Book of Abstracts page
33.14	Identification of copy number variants (CNVs) associated with somatic cell score in Holstein cattle <i>S.G. Narayana, F.S. Schenkel, T.C.S. Chud, A. Butty, C. Baes, F. Malchiodi and H.W. Barkema</i>	354

## Session 34. Breeding for the future: technology finds application in new phenotypes

Room: Aspen 1&2

Chair: Granados Chapatte / Schibler

Session type: Challenge session

### Theatre Session 34

9:00 Introduction: keynote speech

*J. Van Arendonk*

9:15 A better life for pigs and laying hens, tools to phenotype behaviour in chicken and pigs and to store data: how data technology can improve traits such as animal behaviour

*P. Bijma*

9:25 Optical flow for assessing broiler welfare at a flock level

*M. Dawkins*

9:35 Phenotypic tools in Salmon related to welfare; examples how data driven technologies can be applied to improve welfare in fish

*E. Durland*

9:45 New advances based on our feed station and its use for feed efficiency phenotyping

*S. Mignon-Grasteau*

9:55 Q&A

10:00 Coffee break

10:30 Data driven technologies: overview of current research and possibilities related to producing proxies for new phenotypes important to a sustainable and responsible livestock production

*P. Klimek*

10:40 Use of breeding technologies at farm level in ruminants

10:50 Open hybrid discussion

11:50 Wrap up

## Session 35. Good health of pigs and poultry: increasing robustness through feeding and management – part 1

Room: Schwarzhorn

Chair: Daş / Vigors

Session type: Theme session

### Theatre Session 35

### Book of Abstracts page

8:00 Pre-weaning feeding management to support early robustness of piglets and post-weaning health 355

**invited** *P. Bosi*

8:30 Two ways of milk replacer administration enhances survival rate and faecal microbial profile of pigs 355

*P. Trevisi, D. Luise, F. Correa, M. Vitali, C. Negrini, K.J. Volshoj, J.M. Madsen, M.A. Ton Nu and P. Bosi*

8:45 Differences between conventional and artificially reared piglets from the same herd 356

*C. Amdi, M.L.M. Pedersen, A.R. Williams, C. Larsen and J.G. Madsen*

9:00	Preliminary results on the effect of keeping pigs in home environment post weaning <i>J.F.M. Winters, C. Kobek-Kjeldager, L. Foldager and L.J. Pedersen</i>	356
9:15	Effect of dietary resin acid and zinc oxide in weaned piglets subjected to an immune challenge <i>X. Guan, H. Kettunen, R. Santos, J. Vuorenmaa and F. Molist</i>	357
9:30	Effects of live yeast supplementation as a substitute to antibiotics growth promoters in piglets <i>T. Kiros, G. Kuhn, S. Long and X. Piao</i>	357

#### 9:45 Coffee break

10:15	Effect of plant-derived product supplementation on sow and piglet physiology <i>L. Herve, H. Quesnel, A. Greuter, L. Hugonin and N. Le Floc'h</i>	358
10:30	Effect of extracted olive oil wastewater in post weaning phase on infected piglets <i>M.R. Mellino, C. Ollagnier, N. Pradervand, G. Bee and G. Battacone</i>	358
10:45	Medium-chain fatty acids boost polymorphonuclear cell viability in weaned piglets <i>M. De Vos, S. Tanghe, R. D'Inca, K. Lannoo, K. Demeyere and E. Meyer</i>	359
11:00	Supra-nutritional levels of riboflavin on gut health and oxidative stress in post-weaned piglets <i>E. Perez Calvo, J. Schmeisser, B. Blokker, S. Etheve, G. Litta, M. Walsh and A.M. Klunter</i>	359
11:15	Effect of different sources and doses of Cu on ileal microbiota and feed efficiency of weanling pigs <i>A. Forouzandeh, D. Solà-Oriol, L. Blavi, M. Rodríguez, A. Monteiro and J.F. Pérez</i>	360
11:30	Effects of two copper sources on oxidative stress, inflammation, and gene abundance in growing pigs <i>L. Blavi, J.F. Pérez, A. Forouzandeh, F. González, M. De Angelo, A. Romeo, H.H. Stein and D. Solà</i>	360
11:45	Testing natural alternatives to iron injection for organic piglets <i>E. Merlot, C. Robert, C. Clouard, R. Resmond, S. Ferchaud and A. Prunier</i>	361

#### Poster Session 35

#### Book of Abstracts page

35.14	Zinc excretion from weaned pigs relates to zinc intake: a meta-analysis <i>S.V. Hansen and T.S. Nielsen</i>	361
35.15	A mixture of amino acids and condensed tannins reduces post-weaning inflammation in weaned piglets <i>J. Michiels, M. Majdeddin, J. Degroote, N. Van Noten, W. Lambert, Y. Hou, H. Ohara, C. Van Kerschaever, E. Van Liefferingen, M. Vandaele and T. Chalvon-Demersay</i>	362
35.16	The physiological requirement for zinc in newly weaned piglets: a dose-response trial <i>S.V. Hansen, N.P. Nørskov, J.V. Nørgaard, T.A. Woyengo and T.S. Nielsen</i>	362
35.17	Dietary supplementation of standardized citrus extract to pigs shortens their fattening period <i>S. Cisse, H. Bui, M. Buffiere, A. Benarbia and D. Guilet</i>	363
35.18	Preliminary study of microbial quality of animal drinking water for fattening pigs <i>C. Heinemann, C.D. Leubner and J. Steinhoff-Wagner</i>	363

Room: Jakobshorn

Chair: Lee / Bourgeois Lüthi

Session type: Theme session

Theatre Session 36		Book of Abstracts page
8:00	Advancing sustainable livestock systems for resilient sustainable food systems <i>S. Tarawali, F. Schneider and E. Arce Diaz</i>	364
8:30	Estimating carbon sequestration in Portuguese sown biodiverse pastures using machine learning <i>T.G. Morais, R.F.M. Teixeira, M. Jongen, N.R. Rodrigues, I. Gama and T. Domingos</i>	364
8:45	Technical, economic and environmental performances of two contrasted dairy production systems <i>V. Brocard, E. Tranvoiz, S. Dupré, S. Foray, G. Trou and D. Follet</i>	365
9:00	Assessing the sustainability of multiple grass-fed and grain-fed beef systems in the Western USA <i>S.C. Klopatek, E. Marvinney, A. Kendall, X. Yang and J.W. Oltjen</i>	365
9:15	Dairy farming in need of a new approach and paradigm? <i>A. Sundrum, J. Habel, S. Hoischen-Taubner, E. Schwabenbauer, V. Uhlig and D. Möller</i>	366
9:30	Livestock disease resilience: from individual to herd level <i>A.B. Doeschl-Wilson, P.W. Knap, T. Opriessnig and S.J. More</i>	366
9:45	Coffee break	
10:15	Monitoring emissions of the intensive livestock systems in Northern Italy: the Mitigactions project <i>M. Berton, E. Sturaro, S. Schiavon, A. Cecchinato, G. Xiccato, M. Birolo and L. Gallo</i>	367
10:30	Modelling economic performance and greenhouse gas emissions in dairy calf to beef production systems <i>M. Kearney, E. O'Riordan, J. Breen and P. Crosson</i>	367
10:45	The nitrogen footprint assessment on South Korean intensive dairy farms <i>R. Ibdhi, T.H. Kim, R. Bharanidharan and K.H. Kim</i>	368
11:00	Grazing systems performance across increasing levels of sward biodiversity in non-fertilised swards <i>M.J. Rivero, R.J. Orr, B. Griffith, R. Pywell, B. Woodcock and J. Tallowin</i>	368
11:15	Modelling pathways of slurry from livestock production facilities into the environment <i>R. Haupt, C. Heinemann, M. Guse, S.M. Schmid, V. Overmeyer, P. Ebertz and J. Steinhoff-Wagner</i>	369
11:30	Livestock practices of health monitoring in organic farms: useful to think agroecological redesign <i>C. Manoli, P. Roussel, C. Balme, C. Experton and F. Hellec</i>	369
11:45	Blue water productivity in beef farms in two Italian northern regions <i>G. Pirlo, S. Uggeri, L. Migliorati and S. Carè</i>	370
Poster Session 36		Book of Abstracts page
36.14	Milk urea concentrations in different dairy cattle breeds <i>A. Burren, N. Salzgeber, L. Casanova, C. Flury and S. Probst</i>	370
36.15	The effect of teat disinfectant ingredients on teat skin bacteria associated with mastitis <i>D. Gleeson and S. Fitzpatrick</i>	371
36.16	Comparison of different methods for the evaluation of teat disinfectant products <i>S. Fitzpatrick and D. Gleeson</i>	371



36.17	Differences in nutrient use efficiency and food-feed competition among Chinese dairy farms <i>Y. Wang, I.J.M. De Boer and C.E. Van Middelaar</i>	372
36.18	Estimation of carbon footprint in Iberian out-door pig farms <i>P. García-Suárez, A. Horrillo, P. Gaspar, M. Escribano and F.J. Mesías</i>	372
36.19	Analytical methods to formulate blend of rich-saponin plants for reducing ammonia emission in farms <i>M. Le Bot, H. Jolivet, S. Suor-Cherer, M. Buffiere and A. Benarbia</i>	373
36.20	Does mixing cattle with broilers on pasture yield any benefits? <i>S. Hübner and K. Barth</i>	373
36.21	The sheep performances in a grassland-based system is improved when combined with beef cattle <i>K. Vazeille, C. Jury, S. Prache, B. Septchat, C. Troquier, P. Veyssset and M. Benoit</i>	374
36.22	French emission factors of TSP, PM10 and PM2.5: results of field measurements <i>N. Guingand, S. Lagadec and M. Hassouna</i>	374
36.23	The effect of litter type on broiler performance, litter quality and ammonia concentrations <i>M. Brink, G.P.J. Janssens, P. Demeyer, Ö. Bağcı and E. Delezie</i>	375

## Session 37. Sustainability assessments of insects as food and feed in a circular economy

Room: Forum

Chair: Smetana / Veldkamp

Session type: Theme session

<b>Theatre Session 37</b>		<b>Book of Abstracts page</b>
8:00	Entomoponics: combining <i>Tenebrio molitor</i> production and greenhouse vegetable production <i>C.L. Coudron, D. Deruytter and J. Claeys</i>	375
8:15	Industrial symbiosis in insect production – a sustainable eco-efficient and circular business model <i>C. Phan Van Phi, M. Walraven, M. Bézagu, M. Lefranc and C. Ray</i>	376
8:30	ValuSect: valuable insects <i>S. Van Miert</i>	376
8:45	Bioavailability of zinc, iron and calcium in cereal porridge fortified with cricket powder <i>N.C. Maiyo, F.M. Khamis, M.W. Okoth, G.O. Abong, E.R. Omuse and C.M. Tanga</i>	377
9:00	Precision insect farming: heatmaps to monitor growth and behaviour of <i>Tenebrio molitor</i> larvae <i>T. Spranghers, P. Vanloofsvelt and F. Wouters</i>	377
9:15	Environmental opportunities and trade-offs of using feedstuffs for laying hens: LCA of 3 pathways <i>M. McBride, P. Patterson, C. Loyola, C. Papadimitriou and P. Pearson</i>	378
9:30	The effect of rearing conditions on the CO <sub>2</sub> output and required air flow in <i>Tenebrio molitor</i> rearing <i>V.K. Wooding and B. Steiner</i>	378
9:45 Coffee break		
10:15	Environmental impact of feeds utilized for poultry protein productions: soybean vs insect larvae <i>D. Ristic, C.L. Coudron, A. Schiavone, J. Claeys, F. Gai and S. Smetana</i>	379
10:30	Rapid authentication of edible insect powders by DART/HRMS coupled to mid-level data fusion <i>A. Tata, S. Belluco, A. Massaro, A. Negro, M. Bragolusi, R. Piro and F. Marzoli</i>	379
10:45	Strengthening agricultural circularity – the relevance of insect frass <i>C. Muraru, C. Derrien, M. Beiter and A. Grassi</i>	380

**Poster Session 37****Book of Abstracts page**

37.11	Inventory and state of the art for sustainable insect production <i>D.A. Peguero, A. Green, S. Smetana and A. Mathys</i>	380
37.12	CELLOW-FeeP Project – circular economic: live larvae recycling organic waste for rural poultry <i>L. Gasco, A. Schiavone, S. Cerolini, I. Biasato, V. Bongiorno, M.T. Capucchio, E. Dinuccio, I. Ferrocino, V. Moretti, D.M. Nucera, S. Bellezza Oddon, M. Renna, F. Bellagamba, G. Tedeschi and L. Zaniboni</i>	381
37.13	Development of new methodologies to measure digestibility of <i>Tenebrio molitor</i> <i>F.P. Peyrichou</i>	381
37.14	Susceptibility of <i>Alphitobius diaperinus</i> meal to infestations by major stored-product insects <i>M. Rigopoulou, C.I. Rumbos and C.G. Athanassiou</i>	382
37.15	Awareness of chemical hazards in edible insects: toxicokinetics and toxicodynamics of Hg in mealworms <i>D.N. Cardoso, A. Fernandes, R.G. Morgado, M. Prodana, J. Pinto, A. Mostafaine and S. Loureiro</i>	382
37.16	EntoPower: greenhouse gases emissions from <i>Hermetia illucens</i> larvae production <i>J. Andersen, C. Fischer and L.-H. Heckmann</i>	383

**Session 38. Computing in PLF: cloud and edge computing and smart algorithms**

Room: Sanada 1&amp;2

Chair: Pastell

Session type: Theme session

**Theatre Session 38****Book of Abstracts page**

9:00	The shades of gray in model building and its opportunities for precision livestock farming <b>invited</b> <i>R. Muñoz-Tamayo</i>	383
9:30	Opportunities for using computer vision and animal tracking in welfare assessment <b>invited</b> <i>O. Guzhva</i>	384
10:00	Q&A with invited speakers <i>I. Adriaens and M. Pastell</i>	384
10:15	Validation of a real-time location system for neighbour detection in dairy cow groups <i>N. Melzer, B. Foris and J. Langbein</i>	385
10:30	Detecting behavioural patterns of cows using an automated tracking system <i>J. Stachowicz, F. Adrion, H. Nasser and U. Umstätter</i>	385
10:45	Coffee break	
11:15	Happy cow or thinking pig – facial recognition tool for automated welfare <i>S. Neethirajan and B. Kemp</i>	386
11:30	SESAM sensor technology for milk producers <i>L.M. Dale, Z. Vassilev, J. Bieger, K. Drössler, F.J. Auer, M. Erhart, T. Hehn, T. Peikenkamp, M. Klopčič, A. Werner, Sesam Consortium and M. Hoenen</i>	386
11:45	Classification of cow behaviour for sensor assisted alpine milk production <i>T. Peikenkamp, D. Plaia, T. Hehn, D. Gaida, M. Hoenen and A. Ule</i>	387
12:00	Convolutional neuronal networks reveal promising performance in non-invasive pig weight monitoring <i>C. Meckbach, V. Tiesmeyer and I. Traulsen</i>	387

12:15	'It's a long way until they STOP' – development of a software to annotate pecking injuries in turkeys <i>N. Volkmann, J. Brünger, C. Zelenka, J. Stracke, R. Koch, N. Kemper and B. Spindler</i>	388
12:30	Liveweight and condition score trajectories to parametrize self weighing scales in small ruminants <i>D. Francois, T. Dechaux, E. Doutard, S. Parisot, C. Valadier, V. Lê, N. Ardjoune, C. Morgan-Davies, L. Depuille, A. Cheype, E. Gonzalèz-Garcia, T.W.J. Keady, J.P. Hanrahan and J.M. Gautier</i>	388

### Poster Session 38

### Book of Abstracts page

38.12	DATAMATION: DigitAI Twin AniMAI emoTIONS <i>S. Neethirajan and B. Kemp</i>	389
38.13	Feasibility study to characterize calf auricle structure using a laser scanning method <i>J. Steinhoff-Wagner, J.J. Hayer, M. Blome, H. Kuhlmann and C. Holst</i>	389
38.14	An open animal data platform: how open knowledge can serve the livestock and companion animal sector <i>T. Kuntzer, V. Link, S. Redmond, C. Beglinger and S. Rieder</i>	390

## Session 39. Nutrient competition between production and animal health – interactions of nutrition, immunity and microbiota

Room: Pischä + Parsenn

Chair: Gross

Session type: Theme session

### Theatre Session 39

### Book of Abstracts page

9:00	Effects of dietary nutrient composition on the response to intramammary LPS challenge in dairy cows <i>L.A. Wagner, D. Fritsche, R.M. Bruckmaier, J.J. Gross and O. Wellnitz</i>	390
9:15	Metabolism and performance of dairy cows under different dietary regimens at dry-off <i>D. Fritsche, L.A. Wagner, R.M. Bruckmaier, O. Wellnitz and J.J. Gross</i>	391
9:30	Metabolic adaptation to short-term of dietary nutrient imbalances in mid lactation dairy cows <i>J.J. Gross, R. Stürmlin and R.M. Bruckmaier</i>	391
9:45	Increased MDA in early lactating cows with elevated blood levels of NEFA and BHB <i>M.Z. Zhang, S.H. Heirbaut, X.J. Jing, L.V. Vandaele, N.D.N. Neve and V.F. Fievez</i>	392
10:00	Inflammatory gene expression of bovine peripheral blood mononuclear cells following spirulina intake <i>M. Keller, E. Manzocchi, R. Lugarà and K. Giller</i>	392
10:15	DHA and $\omega$ 6-DPA modify toll-like receptor 4 signalling in monocytes and neutrophils of dairy goats <i>A. Mavrommatis and E. Tsiplakou</i>	393
10:30	Gut microbiota variations during the lifespan of two high-yielding laying hen strains <i>C. Roth, T. Sims, M. Rodehutscord, J. Seifert and A. Camarinha-Silva</i>	393
10:45	Coffee break	
11:15	Tailoring amino acid-based solutions for improved performance and intestinal function of broilers <i>R. Barekatin, T. Chalvon-Demersay, H. Ohara and W. Lambert</i>	394
11:30	Regulation of host and microbiome interactions in ruminant livestock <i>L. Guan</i>	394
12:00	Housing hygiene conditions impact adult stem cell populations in adipose and muscle tissues of pigs <i>A. Quéméner, F. Dessauge, M.H. Perruchot, N. Le Floc'h and I. Louveau</i>	395

12:15	<i>In vivo</i> and organoid experiments reveal beneficial effects of amino acids and polyphenols in piglets <i>M. Beaumont, C. Lencina, J. Viémon-Desplanque and T. Chalvon-Demersay</i>	395
12:30	Glutamate and glutamine supply to improve the health and immune competence of post-weaning piglets <i>D. Luise, T. Chalvon-Demersay, F. Correa, O. Hiroyuki, W. Lambert, C. Negrini, P. Bosi and P. Trevisi</i>	396
12:45	Effect of different Zn sources on rumen fermentation, immune, and antioxidant response in dairy cows <i>S.H. Mir, V. Mani, N. Tyagi, S. Singh, E.V. Rajamanickam and B. Umesh</i>	396

### Poster Session 39

### Book of Abstracts page

39.14	Dietary administration of oregano essential oil to newborn dairy calves improves feed efficiency <i>S. Andrés, L. Abdennebi-Najar and F.J. Giráldez</i>	397
39.15	Supplementing milk with seaweeds affects liver mineral concentrations in preweaning Holstein calves <i>M.B. Samarasinghe, J. Sehested, M.R. Weisbjerg, M. Vestergaard and L.E. Hernández-Castellano</i>	397
39.16	Dietary L-carnitine supplied to early feed-restricted lambs during the fattening period <i>A. Martín, F.J. Giráldez, P. Cremonesi, B. Castiglioni, F. Biscarini, F. Cecilian and S. Andrés</i>	398
39.17	Bovine miRNA-mRNA dynamics during high-grain feeding and phytogetic supplementation in cattle <i>C. Pacífico, S. Ricci, F. Sajovitz, R.M. Petri, E. Castillo-Lopez, R. Rivera-Chacon, Q. Zebeli, N. Reisinger and S. Kreuzer-Redmer</i>	398
39.18	DHA-enriched oil supplementation in MR does not affect blood concentration of DHA metabolites <i>J. Flaga, A. Waliczek, J. Barć, M. Przybyło, P. Górka and Z.M. Kowalski</i>	399
39.19	DHA-enriched oil dietary supplementation does not affect cytokine production in bovine WBC <i>J. Flaga, A. Waliczek, J. Barć, P. Górka and Z.M. Kowalski</i>	399
39.20	GSH supplementation increases diarrhoea prevalence and increases an inflammatory response <i>Y. Hou, J. Degroote and J. Michiels</i>	400
39.21	Effect of a cultivated fungal vs a synthetic enzyme cocktail on <i>in vitro</i> NDF digestion of forages <i>J.H.C. Van Zyl, Z. Skippers and C.W. Cruywagen</i>	400

## Session 40. Heifer growth strategies for increased productivity, longevity and reduced environmental impact

Room: Seehorn

Chair: Foskolos

Session type: Theme session

### Theatre Session 40

### Book of Abstracts page

9:00	Evaluation of growth and reproduction performance of replacement dairy heifers <i>A. Plomaritou, M.E. Hanlon, K. Gatsas, R.G. Pitino, K. Tremmas, L. Karatosidi, F. Righi and A. Foskolos</i>	401
9:15	Impact of enhanced compared to restricted milk feeding on performance and welfare of rearing calves <i>S. Ivemeyer, D. Haager, C. Simantke, P. Mayer, K. Kull, J. Preußner, G. Utz, U. Knierim and C. Winckler</i>	401
9:30	Plasma vitamin E in calves fed different sources and doses of vitamin E around weaning <i>S. Lashkari, S.K. Jensen and M. Vestergaard</i>	402
9:45	Effect of enhanced early life nutrition on the of the anterior pituitary proteome of heifer calves <i>A.K. Kelly, K. Keogh, C. Byrne and D.A. Kenny</i>	402
10:00	Effects of maize silage (MS) inclusion at different age in Holstein Friesian and Belgian Blue calves <i>M. Lamérand, S. Curial, I. Van Hese, B. Ampe, G. Opsomer, L. Vandaele and K. Goossens</i>	403

10:15	Grazing behaviour of pregnant dairy heifers depending on pasture growth <i>S. Elsholz, C. Siede and I. Traulsen</i>	403
10:30	Heart girth measurements to estimate body weight of growing and mature Holstein-Friesian cattle <i>C.E. Bailey and J.M. Moorby</i>	404
10:45	Coffee break	
11:15	Body measurement for female Holstein Friesian calves' weight estimation from birth to 15 months old <i>L. Turini, G. Conte, F. Bonelli, A. Madrigali, M. Sgorbini and M. Mele</i>	404

## Session 41. Joint EAAP/ADSA session 'Future of housing for cattle' – part 1

Room: Wisshorn

Chair: Costa / Klopčič

Session type: Freewalk session

	Theatre Session 41	Book of Abstracts page
9:00	Introduction to FreeWalk housing project <i>A. Kuipers, U. Emanuelson, S. Koenig, J. Roosen, M. Barbari, K. Hovstad, E. Ofner-Schroeck and M. Klopčič</i>	405
9:15	<b>invited</b> Dairy cattle housing, management and welfare in Switzerland <i>B. Wechsler</i>	405
9:45	<b>invited</b> Future of dairy cattle housing from a U.S. perspective <i>M.I. Endres</i>	406
10:15	Future of cattle housing <i>P.J. Galama, M.I. Endres, J.R. Sprecher, L. Leso and M. Klopčič</i>	406
10:30	Lying behaviour in freewalk vs cubicle barns <i>W. Ouweltjes, P.J. Galama and A. Kuipers</i>	407
10:45	Coffee break	
11:15	Bedding management in compost-bedded pack and cubicle barns for dairy cows in Europe <i>L. Leso, P.J. Galama, I. Blanco Penedo, K. Bruegemann, A. Zentner, M. Klopčič, K.A. Hovstad and M. Barbari</i>	407
11:30	<b>invited</b> Cowtoilet and bedding cleaner <i>H. Hanskamp and P.J. Galama</i>	408
12:00	Health aspects of dairy herds in FreeWalk and cubicle housing systems <i>U. Emanuelson, K. Brügemann, M. Klopčič, L. Leso, W. Ouweltjes, A. Zentner and I. Blanco-Penedo</i>	408
12:30	Dairy cattle welfare in two housing systems in Europe <i>I. Blanco-Penedo, J.T.N. Van Der Werf, K. Brügemann, E. Ofner-Schröck, L. Leso, M. Klopčič and U. Emanuelson</i>	409
12:45	Animal-centric approach to mitigate heat stress – housing and management practices in Israel <i>I. Halachmi, H. Levit and A. Godo</i>	409
	Poster Session 41	Book of Abstracts page
41.11	Potential alternative bedding materials for dairy cattle <i>P.F. Ponciano Ferraz, L. Leso and M. Barbari</i>	410

## Session 42.

# Inclusive livestock nutrition: where we have a trade-off between performance, environmental sustainability and animal welfare

Room: Studio

Chair: Bruggeman / De Campeneere

Session type: Theme session

<b>Theatre Session 42</b>		<b>Book of Abstracts page</b>
9:00	How individual sorting behaviour in dairy goats might modify dietary nutritive characteristics? <i>S. Giger-Reverdin, D. Sauvant and H.W. Erhard</i>	410
9:15	Nutritive value of cabbage and pelleted complete feed in free-ranged organic growing rabbit <i>J.P. Goby, C. Bannelier and T. Gidenne</i>	411
9:30	Effect of feed competition on activity and social behaviour of gestating sows <i>M. Durand, A. Julienne, J.Y. Dourmad and C. Gaillard</i>	411
9:45	Particle sizes in faeces of sheep, goats, and steers fed on corn silage vary with NDF intake levels <i>E.S. Aniceto, N.M. Rohem Jr., M.A.R. Nogueira, J.G. Oliveira and R.A.M. Vieira</i>	412
10:00	Silage type and <i>Acacia mearnsii</i> influence N metabolism of dairy cows and slurry released ammonia <i>G. Lazzari, A. Muenger, L. Eggerschwiler, M. Zähler, M. Kreuzer, S. Schrade and F. Dohme-Meier</i>	412
10:15	Fresh herbages as forage basis for dairy cow TMR: effects on performance and rumen characteristics <i>D. Enriquez-Hidalgo, C. Sanchez, M. De Azevedo, S. Escobar, D.L. Teixeira and E. Vargas-Bello-Pérez</i>	413
10:30	Replacing corn with bakery meal in weanling pig diets: effect on welfare and growth performance <i>A. Luciano, C.D. Espinosa, L. Pinotti and H.H. Stein</i>	413
10:45	Coffee break	
11:15	Effect of altering broiler diet ingredients and phytase content on nitrogen and phosphorus excretion <i>C.C. Mulvenna, E. Magowan, M.R. Bedford, M. Oster, H. Reyer, D. Fornara and M.E.E. Ball</i>	414
11:30	Toasted faba beans as economical replacement of soybean expeller meal in organic dairy rations <i>L. Sobry, I. Louwagie and J. De Boever</i>	414
11:45	Multispecies grazing, an alternative economic model for small scale farmers <i>M. Odintsov Vaintrub</i>	415
12:00	Lowering crude protein in diets for late finishing pigs <i>V.E. Beattie, E. Ball, S. Smyth, K.J. McCracken, U. McCormack, R. Muns, F.J. Gordon, R. Bradford and E. Magowan</i>	415
12:15	Alternative energy and protein components in broiler diets <i>S. Mueller, S. Pfulg, P. Spring and R. Zweifel</i>	416
<b>Poster Session 42</b>		<b>Book of Abstracts page</b>
42.13	The use of alternative feed ingredients plus phytase on the nitrogen and phosphorus balance of pigs <i>C.C. Mulvenna, E. Magowan, M.R. Bedford, D. Fornara and M.E.E. Ball</i>	416
42.14	Rumen fatty acids in pasture cattle supplemented with safflower or soybean, and chitosan addition <i>T. Fernandes, N.G. Silva, L.E.F. Oliveira, L.R. Feitosa, C.C. Silva, T.M. Souza, S.P. Alves, R.J.B. Bessa and R.H.T.B. Goes</i>	417
42.15	Inclusion of whole plant green tomato on corn silage-based diets in sheep <i>L.E. Robles-Jimenez, A.C. Narváez López, A. Sainz Ramirez, A.J. Chay Canul, E. Vargas-Bello-Pérez and M. Gonzalez-Ronquillo</i>	417
42.16	Impact of ergot alkaloid and steroid implant on protein turnover and muscle mTOR pathway of cattle <i>T.D. Ferguson, C.M.M. Loos, E.S. Vanzant, A.D. Bohannon, J.L. Klotz and K.R. McLeod</i>	418

42.17	Nutritive value of <i>Opuntia ficus-indica</i> and its use in ruminant feed <i>C. Maduro Dias, C. Vouzela, J. Madruga and A. Borba</i>	418
42.18	Study nutritional value the <i>Eucalyptus globulus</i> and <i>Cryptomeria japonica</i> in ruminant feed <i>H. Nunes, C. Maduro Dias and A. Borba</i>	419
42.19	Effect of short-term supplementation of marine n-3 PUFA on the acute phase response of calves <i>S. Kamel Oroumieh, L. Van Meulebroek, R. Valizadeh, L. Vanhaecke and A.A. Naserian</i>	419
42.20	Effects of corn stover on growth performance of lambs <i>B.S. Obeidat, H. Omoush and I. Khader</i>	420
42.21	Betaine supplementation mitigates hyperthermia in heat-stressed, hypohydrated Awassi ram lambs <i>H. Al-Tamimi, B. Obeidat, K. Mahmoud and M. Daradka</i>	420
42.22	Metabolic risk factors for impaired growth performance in intensively-fed light lambs <i>J. Pelegrin-Valls, B. Serrano-Pérez, D. Villalba, E. Molina, J.R. Bertolín, M. Joy and J. Alvarez-Rodriguez</i>	421
42.23	Metabolic effects from severe protein reductions adjusting the amino acids supply in finishing pigs <i>J. Álvarez-Rodríguez, R. Dosso, L. Pérez-Ciria, F.J. Miana-Mena and M.A. Latorre</i>	421
42.24	Crude protein and amino acids in finishing pig diets <i>M.E.E. Ball, V.E. Beattie, S. Smyth, K.J. McCracken, U. McCormack, R. Muns, R. Bradford and F.J. Gordon</i>	422
42.25	Effect of genotype and diet on growth performances of broiler chickens and environmental parameters <i>A. Fatica, F. Fantuz, M. Wu, S. Tavaniello, G. Maiorano and E. Salimei</i>	422

## Session 43.                    **Optimisation of sheep and goats production systems: strategies for sustainable and resilient agroecosystems**

Room: Sertig

Chair: Cadavez

Session type: Theme session

<b>Theatre Session 43</b>		<b>Book of Abstracts page</b>
9:00	Bench-testing future systems: combining genetics, nutrition and farm types to predict outcomes <i>L. Puillet</i>	423
	<b>invited</b>	
9:45	Sheep farming systems in Italian Eastern Alps and their relationships with agroecosystems <i>M. Teston, E. Benedetti Del Rio, L. Cei, P. Gatto, E. Defrancesco and E. Sturaro</i>	423
10:00	Needs of the sheep industry regarding health and nutrition management in Europe, UK and Turkey <i>R.J. Ruiz, I. Beltrán De Heredia, A. Carta, B. Fanca, T.W.J. Keady, C. Lidga, I. Monori, C. Morgan-Davies, S. OcAk and P.G. Grisot</i>	424
10:15	Assessing heat tolerance in dairy sheep – production vs physiology <i>M.J. Carabaño, C. Díaz, M.D. Pérez-Guzmán and M. Ramón</i>	424
10:30	Exploring the effects of innovations on the sustainability of sheep farming systems in Spain <i>A. Tenza-Peral, D. Villalba, T. Rodríguez-Ortega and A. Bernués</i>	425
10:45	Coffee break	
11:15	Effects of lactation stage, parity and season on goat milk quality in alpine area <i>T. Zanon and M. Gaulty</i>	425
11:30	Socio-economic drivers of farmer participation in livestock breeding for heat tolerance <i>D. Martin-Collado, C. Diaz, A. Iglesias, M.J. Milan, M. Ramon, M. Sanchez and M.J. Carabaño</i>	426

11:45	Effect of farm typology on the sustainability of goat farms in Spain <i>A. Belanche, J. Fernandez, A.I. Martin-Garcia and D.R. Yanez-Ruiz</i>	426
12:00	Exploring the impact of within flock variability on hormone-free dairy sheep farm performances <i>E. Laclef, N. Debus, P. Taillandier, E. Gonzalez-Garcia and A. Lurette</i>	427
12:15	Effect of production system on quality of lamb meat from eight European breeds <i>U. Gonzales-Barron, G. Santos-Rodrigues, R.P. Bermúdez, S. Coelho-Fernandes, K. Osoro, R. Celaya, R.S. Maurício, J. Pires, A. Tolsdorf, A. Geb, F. Chiesa, M. Pateiro, A. Brugiapaglia, R. Bodas, M. Baratta, J.M. Lorenzo and V.A.P. Cadavez</i>	427
12:30	Effects of grass silage quality and sheep breed on enteric methane emissions from ewes <i>B.A. Åby, I. Dønnem, J. Jakobsen and G. Steinheim</i>	428
12:45	Selfmedicative behaviour: alteration in feed preferences of GIN-infected Boer goats <i>M. Heuduck, C. Strube, K. Raue, E. Schlecht and M. Gerken</i>	428

### Poster Session 43

### Book of Abstracts page

43.13	First estimations of methane emissions using Sheep GreenFeed in the Romane breed <i>A. Rozier, D. François, D. Maupetit, Y. Legoff and F. Tortereau</i>	429
43.14	Greensheep LIFE: finding common methods to estimate environmental impact from sheep farms <i>A.S. Atzori, C. Buckley, M. Decandia, O. Del Hierro, C. Dragomir, K. Hanrahan, T.M.J. Keady, R. Ruiz, A. Vigan, R. Bodas, J.B. Dolle and S. Moreau</i>	429
43.15	Carbonsheep: a GIS tool to benchmark and spatialize the carbon footprint of sheep farms <i>A.S. Atzori, M.F. Lunesu, P. Sau, D. Pili, A. Cannas and M.T. Pacchioli</i>	430
43.16	Effects of some climatic factors on water consumption in Boer goats <i>O.S. Voia, D. Slaughter, S.E. Erina and L.T. Csiszter</i>	430

## Session 44.

## PLF methods for measuring health, welfare and caring for individual animals

Room: Davos

Chair: Adriaens / Bloch

Session type: Theme session

### Theatre Session 44

### Book of Abstracts page

13:30	Automated animal-based measures of poultry welfare for precision livestock farming <i>invited L. Asher</i>	431
14:00	Automated assessment of broiler resource-use via computer vision <i>J.A.J. Van Der Eijk, O. Guzhva, A. Voss, T. Almekinders, H. Gunnink, S. Melis, M.F. Giersberg and I.C. De Jong</i>	431
14:15	Feet control: reliability of an automatic system to assess foot pad dermatitis at the slaughterhouse <i>J. Stracke, N. Kemper and B. Spindler</i>	432
14:30	Effect of farm on milk yield characteristics during mastitis at farms with automatic milking systems <i>L. D'Anvers, M. Gote, Y. Song, K. Geerinckx, I. Van Den Brulle, S. De Vlieghe, B. Aernouts and I. Adriaens</i>	432
14:45	Use of infrared thermography and rectal thermometer to measure body temperature of gestating sows <i>M. Durand, D. Renaudeau and C. Gaillard</i>	433
15:00	Analysis of daily rumination time under heat stress of lactating dairy cows <i>T. Müschner-Siemens, J. Heinicke, G. Hoffmann, C. Ammon and T. Amon</i>	433



15:15 Coffee break

15:45	Estimating sickness-probabilities for identifying dairy cows at risk of disease <i>I. Dittrich, M. Gertz, B. Maassen-Francke, K. Grosse-Butenuth, W. Junge and J. Krieter</i>	434
16:00	Measurement of the dielectric constant for hyperkeratosis detection in the teat of dairy cows <i>S. Demba, G. Hoffmann, C. Ammon and S. Rose</i>	434
16:15	Multivariate analysis of milk parameter dynamics for healthy dairy cows and during clinical mastitis <i>M.J. Gote, L. D'Anvers, Y. Song, I. Van Den Brulle, K. Geerinckx, S. De Vliegher, B. Aernouts and I. Adriaens</i>	435
16:30	External validation of PLF technologies with application for animal-based dairy welfare assessment <i>A.H. Stygar, Y. Gómez, G.V. Berteselli, E. Dalla Costa, E. Canali, J.K. Niemi, P. Llonch and M. Pastell</i>	435
16:45	Influence of environmental risk factors on coughing frequency on a respiratory disease-free pig farm <i>J. Pessoa, E. Garcia Manzanilla, C. McAloon, T. Norton and L. Boyle</i>	436

#### Poster Session 44

#### Book of Abstracts page

44.12	Circadian rhythm of temperature, heart rate and activity of cattle grazing under different densities <i>C. Palacios and J.A. Abecia</i>	436
44.13	Using an accelerometer based on inertial measurement unit to evaluate the sexual activity of the ram <i>M. Alhamada, E. Gonzalez-Garcia, N. Debus, A. Lurette, J.B. Menassol and F. Bocquier</i>	437
44.14	Early mastitis detection in cows using 3D motions sensors <i>G. Grodkowski, T. Szwaczkowski, K. Koszela, W. Mueller, K. Tomaszuk, T. Baars and T. Sakowski</i>	437
44.15	Identifying and characterizing disturbances from high-throughput phenotyping data <i>V.L. Le, I.D. David and T.R. Rohmer</i>	438
44.16	Automated area of interest and feature extraction from thermal images for cattle lameness monitoring <i>I. Hulsegge, A. Van Breukelen, R. Petie, J. Gonzalez and C. Kamphuis</i>	438

## Session 45.

## Free communications in animal genetics

Room: Aspen 1&2

Chair: Cecchinato

Session type: Free communications / Bottom-up session

#### Theatre Session 45

#### Book of Abstracts page

13:30	A genetic study of temperament in American Angus heifers and cows <i>A.B. Alvarenga, H.R. Oliveira, S.P. Miller, K. Retallick and L.F. Brito</i>	439
13:45	Genomic loci for uterine diseases in Holstein cows and impact on milk production and fertility <i>K. May, L. Sames, C. Scheper and S. König</i>	439
14:00	The impact of sub-clinical mastitis infections on technological traits in Holstein cattle <i>S. Pegolo, R. Tessari, V. Bisutti, E. Fiore, M. Gianesella, D. Giannuzzi, S. Schiavon, L. Gallo, E. Trevisi, P. Ajmone Marsan, R. Negrini and A. Cecchinato</i>	440
14:15	Genetic association between direct and indirect measures of IgG concentration in bovine colostrum <i>A. Costa, A. Goi, M. Franzoi, G. Visentin, M. De Marchi and M. Penasa</i>	440
14:30	Studying relationships between production traits in Holstein Friesian using structural equations <i>M. Jakimowicz, T. Suchocki, A. Żarnecki, M. Skarwecka and J. Szyda</i>	441

14:45	Stability of breeding values in the genomic era <i>D. Lourenco, S. Tsuruta, J. Hidalgo and I. Misztal</i>	441
15:00	Design of breeding programs for Butana cattle using a stochastic simulation approach <i>E.A.M. Omer, R. Roessler and D. Hinrichs</i>	442

### 15:15 Coffee break

15:45	A strategy for maximizing genetic diversity in the first generations of a pig synthetic line <i>A. Ganteil, T. Pook, S.T. Rodriguez-Ramilo, B. Ligonische and C. Larzul</i>	442
16:00	Genetic parameters for growth rate in Danish organic pigs <i>T.M. Villumsen, T.T. Chu, R.M. Zaalberg and J. Jensen</i>	443
16:15	Selection for environmental variance of litter size modified the cecum metabolomic profile <i>C. Casto-Rebollo, M.J. Argente, M.L. García, A. Blasco and N. Ibáñez-Escriche</i>	443
16:30	Impact of genetic and environmental covariance between dam and offspring on predictive ability <i>H. Romé, T.T. Chu, D. Marois, C.H. Huang, P. Madsen and J. Jensen</i>	444

### Poster Session 45

### Book of Abstracts page

45.12	Age of cows, as a factor shaping the level of immunostimulating properties of colostrum <i>K. Puppel, G. Grodkowski, P. Solarczyk, P. Kostusiak, M. Klopčič, K. Grodkowska and T. Sakowski</i>	444
45.13	Estimation of effects of pathways on dairy cattle stature using GWAS summary statistics <i>B. Kosinska-Selbi, T. Suchocki, Z. Cai, G. Sahana and J. Szyda</i>	445
45.14	Genetic parameters of maternal traits recorded in beef cattle progeny test stations <i>S. Taussat, A. Govignon-Gion, L. Izard, S. Stamane, A. Michenet, P. Martin and S. Fritz</i>	445
45.15	Influence of intensity of selection on the accuracy of genomic breeding values – a simulation study <i>S. Andonov and D.J. De Koning</i>	446
45.16	Efficiency of genomic selection for fibre traits in alpacas <i>B. Mancisidor, A. Cruz, G. Gutiérrez, A. Burgos, J. Moron, M. Wurzinger and J.P. Gutiérrez</i>	446
45.17	Genetic diversity analysis at LALBA gene promoters in domestic camelids <i>A.A.S. Mohammed, C. Versace, G. Gaspa and A. Pauciullo</i>	447
45.18	Analysis of chromosome abnormalities in Murrah buffalo secondary oocytes by tri-colour FISH <i>C. Versace, J.H. Shang, L.Y. Li, A. Perucatti and A. Pauciullo</i>	447
45.19	CLARITY: an R-shiny app to explore the combined physical-genetic map in Holstein cattle <i>N. Melzer, S. Qanbari and D. Wittenburg</i>	448
45.20	A new candidate region associated with the appearance of wattless in Mangalitsa pig <i>M. Zorc, D. Škorput, K. Gvozdanović, R. Savić, Č. Radović, M. Škrlep, M. Čandek Potokar and P. Dovč</i>	448
45.21	The long non-coding RNAs recognition and diversity analysis across different pigs breed and tissue <i>K. Żukowski, A. Bąk, K. Ropka-Molik and K. Piórkowska</i>	449
45.22	<i>In vivo</i> estimation of body composition of crossbreed beef cattle using ultrasound measurements <i>R. Siegenthaler, I. Morel, C. Xavier, F. Dohme-Meier and S. Lerch</i>	449
45.23	Similarities between Mendelian sampling values in a large commercial cattle population <i>A.A. Musa, N. Frioni, D. Segelke and N. Reinsch</i>	450
45.24	Chicken model to study the epigenetic impact and inheritance thereof <i>M. Bednarczyk, E. Grochowska, A. Dunisławska and K. Stadnicka</i>	450

45.25	Genomic PCA – a proxy for monitoring genetic connectedness between flocks (case study on sheep) <i>A. Kasap, J. Ramljak and M. Špehar</i>	451
45.26	Negative impact of single and double stranded sperm DNA damage in <i>in vitro</i> fertilization in pig <i>J. Ribas-Maynou, Y. Mateo-Otero, A. Delgado-Bermudez, S. Recuero, M. Llavanera and M. Yeste</i>	451
45.27	Seeking for the inner potential: integration of geographic differentiation in domestication programs <i>L. Toomey, P. Fontaine and T. Lecocq</i>	452
45.28	A CRISPR/Cas9 approach to confer viral resistance in pigs <i>J.-H. Soellner, H.J. Sake, A. Frenzel, R. Lechler, D. Hermann, W. Fuchs and B. Petersen</i>	452
45.29	Effect of HOXA10 and HOXA11 genes polymorphisms on the size of reproductive organs in pigs <i>A. Mucha, M. Szyndler-Nędza, R. Tuz, K. Piórkowska, M. Małopolska and T. Schwarz</i>	453
45.30	Multibreed genetic evaluation for Finnish beef cattle population <i>T.J. Pitkänen, M. Taskinen, E.A. Mäntysaari and M. Leino</i>	453

## Session 46.

## Use of genomic information

Room: Schwarzhorn

Chair: Sell-Kubiak

Session type: Free communications / Bottom-up session

	<b>Theatre Session 46</b>	<b>Book of Abstracts page</b>
13:30	Genomic inbreeding and highly homozygous regions in Colombian Creole cattle populations <i>G. Mészáros, R.A. Martínez, C. Lucero, M. Naves and W.O. Burgos Paz</i>	454
13:45	Preliminary analysis of ROH in two divergent lines of mouse selected for birth weight variability <i>C. Ojeda-Marin, I. Cervantes, N. Formoso-Rafferty, J.P. Gutiérrez and F. Goyache</i>	454
14:00	High-density genome-wide association for variability of litter size in pigs <i>E. Sell-Kubiak, E.F. Knol and M.S. Lopes</i>	455
14:15	Quantitative variation of male fertility in Brown Swiss cattle is shaped by autosomal recessive loci <i>M. Hiltbold, N.K. Kadri, F. Janett, U. Witschi, F. Schmitz-Hsu and H. Pausch</i>	455
14:30	Dimensionality of genomic information and its impact on GWA and variant selection <i>S. Jang, S. Tsuruta, N. Leite, I. Misztal and D. Lourenco</i>	456
14:45	Gradient boosting is a competitive method for genomic prediction of complex traits in outbred mice <i>B.C. Perez, M.C.A.M. Bink, G.A. Churchill and M.P.L. Calus</i>	456
15:00	A 200K SNP-chip for endangered German Black Pied cattle (DSN) <i>G.B. Neumann, P. Korcuć, D. Arends, M. Wolf, K. May, S. Koenig and G.A. Brockmann</i>	457
15:15	Coffee break	
15:45	Estimation of dam line composition of 3-way crossbred broilers using genomic information <i>M.P.L. Calus, J.M. Henshall, R.J. Hawken and J. Vandenplas</i>	457
16:00	Optimised core subset construction for the APY model <i>I. Pocrnic, F. Lindgren and G. Gorjanc</i>	458
16:15	Using a priori biological information to evaluate the ability of BayesRC model in genomic prediction <i>B. Ali, P. Croiseau and F. Mollandin</i>	458

16:30 Extension of Bayesian genomic prediction models for the integration of functional annotations 459  
*F. Mollandin, P. Croiseau and A. Rau*

16:45 Long-term changes in the genome due to genomic selection 459  
*Y.C.J. Wientjes, P. Bijma, J. Van Den Heuvel, B.J. Zwaan, Z.G. Vitezica and M.P.L. Calus*

#### Poster Session 46

#### Book of Abstracts page

46.13 The impact of parent-of-origin effects on the variation in milk production traits 460  
*R.E. Jahnel, I. Blunk, H. Täubert and N. Reinsch*

46.14 Links between homozygosity and autozygosity in the major histocompatibility complex in dogs 460  
*M.H.G. Cartick, A. Geretschläger and G. Mészáros*

46.15 Commercial crossbred data could be used for selection in pure lines with the help of DNA pooling 461  
*M.N. Aldridge, J. Marjanovic, J.M. Henshall, B. De Klerk, K. Peeters and Y. De Haas*

46.16 Decay of accuracy of genomic predictions over time in broilers 461  
*J. Hidalgo, D. Lourenco, S. Tsuruta, Y. Masuda, V. Breen, R. Hawken, M. Bermann and I. Misztal*

46.17 Impact of integrating genomic data into fertility genetic evaluation in the Florida goat breed 462  
*C. Ziadi, E. Muñoz-Mejías, M. Sánchez, M.D. López and A. Molina*

46.18 Classifying aneuploidy in genotype intensity data using deep learning 462  
*A.C. Bouwman, B. Hulsegge, J.M. Henshall, R.J. Hawken, R.F. Veerkamp, D. Schokker and C. Kamphuis*

46.19 EuroGenomics SNP MACE – projecting national full reference SNP estimates to a common marker set 463  
*H. Kärkkäinen, V. Ducrocq, Z. Liu, S. Borchersen, G.P. Aamand and E.A. Mäntysaari*

## Session 47. What levers can be activated by stakeholders to promote the livestock transition?

Room: Jakobshorn

Chair: Thenard / Siqueira

Session type: Theme session

#### Theatre Session 47

#### Book of Abstracts page

13:30 How can participatory approaches help stakeholders to progress in monogastric productions? 463  
*invited B. Méda, I. Bouvarel and L. Fortun-Lamothe*

14:00 Consumer perceptions of a multi-level animal welfare label in Germany 464  
*G. Busch, J. Praast and A. Spiller*

14:15 Serious game: a cutting-edge tool for stakeholders to redesign livestock systems towards agroecology 464  
*J. Ryschawy, J. Faure, F. Moojen and V. Thénard*

14:30 Identifying levers to transition to prudent antimicrobial use through multi-stakeholder Living Labs 465  
*M. Vaarst, F. Bonnet-Beaugrand, B. Oehen, H. Prinsen and A. Spaans*

14:45 Green assets of equines in Europe: possible overview through the creation of a data collection tool 465  
*A. Rzekęć and C. Vial*

15:00 Exploration of health practices in dairy farms: links with the farming system and work organization 466  
*V. Gotti, C. Manoli and B. Dedieu*

15:15 Coffee break

15:45	Carbon neutral Brazilian beef: from the scientific concept to the world's market	466
<b>invited</b>	<i>D.J. Bungenstab, F.V. Alves, R.G. Almeida, R.C. Gomes and M.C.M. MacEdo</i>	
16:15	Ecological transition in dairy territories: the role of collective brands sustainability standards	467
	<i>T.T.S. Siqueira, A. Gonçalves, M.M.D. Bouroullec and L. Mur</i>	
16:30	The role of certification in the transition towards a more sustainable livestock sector	467
	<i>E.M. De Olde and I.J.M. De Boer</i>	
16:45	Income over service life cost – a concept to calculate cost-benefit relationships of dairy cows	468
	<i>J. Habel, S. Hoischen-Taubner, E. Schwabenbauer, V. Uhlig, D. Möller and A. Sundrum</i>	

#### Poster Session 47

#### Book of Abstracts page

47.11	Animal farming acceptability: corporate sustainability projects must embrace a feed-land-fork vision	468
	<i>A.J. Escribano</i>	
47.12	Ensiling agro-industrial byproducts to use as feedstuffs for ruminants	469
	<i>M.T.P. Dentinho, K. Paulos, C. Costa, J.M. Costa, O. Moreira, S. Alves, E. Jeronimo and J. Santos-Silva</i>	
47.13	Process-based 'dynamic energy budget' metabolic theory for managing livestock growth and emissions	469
	<i>G.M. Marques, C.M.G.L. Teixeira, T. Sousa, T.G. Morais, R.F.M. Teixeira and T. Domingos</i>	
47.14	Biogas production from Azorean animal manure	470
	<i>S. Teixeira, C. Vouzela, J. Madruga and A. Borba</i>	
47.15	Farming methods information as food claim to counteract the negative image of foods of animal origin	470
	<i>A.J. Escribano</i>	

## Session 48.

## Insects: standardisation and terminology

Room: Forum

Chair: Deruytter / Shumo

Session type: Working group session

#### Theatre Session 48

#### Book of Abstracts page

13:30	Black soldier fly larvae: standardized feed protocol development and evaluation	471
<b>invited</b>	<i>L. Gasco, D. Deruytter, A. Gligorescu, W. Yakti, C.L. Coudron, M. Meneguz, F. Grosso, M. Shumo, L. Frooninckx, I. Noyens, S. Bellezza Oddon, I. Biasato, T. Spranghers, G. Vandenberg, D.G.A.B. Oonincx and G. Bosch</i>	
14:00	Standardisation of yellow mealworm feed experiments: first tests and optimizing the protocol	471
	<i>M. Van Peer, C. Coudron, S. Berrens, D. Deruytter, A. Kingston-Smith and S. Van Miert</i>	

## Session 49.

## Transgenerational effect of nutrition (feeding of mother, effect on offspring)

Room: Sanada 1&2

Chair: Kreuzer-Redmer / Alvarez Rodriguez

Session type: Theme session

#### Theatre Session 49

#### Book of Abstracts page

14:30	Periconceptional diet and epigenetic programming of offspring health and productivity	472
<b>invited</b>	<i>K.D. Sinclair</i>	
15:00	Effects of cow milk protein genotypes on health, growth and $\beta$ -casomorphin-7 level in the offspring	472
	<i>L.G. Hohmann, H. Schweizer, T. Yin, I.J. Giambra, S. Koenig and A.M. Scholz</i>	

15:15	Can we alter the microbial composition in bovine colostrum through the dry period ration? <i>I. Van Hese, K. Goossens, L. Vandaele and G. Opsomer</i>	473
15:30	Effects of improved early life nutrition on miRNA and mRNA expression in testes of the bull calf <i>S. Coen, K. Keogh, P. Lonergan, S. Fair and D. Kenny</i>	473
15:45	Milk composition and productive performance from dairy goats fed with sunflower and rapeseed oils <i>E. Vargas-Bello-Pérez, N. Camilla Pedersen, R. Dhakal and H.H. Hansen</i>	474
16:00	Effect of the dietary calcium level on the performances and bones' resorption in of lactating sows <i>A. Samson, C. Launay, E. Janvier, F. Payola and E. Schetelat</i>	474

#### 16:15 Coffee break

16:45	Sex-specific transgenerational effects of maternal diet type and spirulina supplementation in pigs <i>R. Lugarà, R. Bruckmaier and K. Giller</i>	475
17:00	Dry grape extract supplementation in sows improves colostrum quality and piglets' performances <i>P. Engler, D. Bussièrès, A. Demortreux, N. Paisley and A. Benarbia</i>	475

#### Poster Session 49

#### Book of Abstracts page

49.09	Maternal subnutrition increases antioxidant defences during peri-implantation period in beef cattle <i>B. Serrano-Pérez, A. Carbonell, A. Noya, I. Casasús, A. Sanz, I. López-Helguera, J. Álvarez-Rodríguez, E. Molina and D. Villalba</i>	476
49.10	<i>In utero</i> undernutrition affects heifer growth, follicle and metabolic traits but not age at puberty <i>A. Sanz, I. Casasús, J. Ferrer, L. López De Armentia and A. Noya</i>	476
49.11	Vitamin A regulates myoblast hyperplasia and myogenesis in bovine stromal vascular cell <i>X.C. Jin, D.Q. Peng, J.S. Park, W.S. Kim, Y.H. Jo, J.H. Lee, B.M. Kim, J. Ghassemi Nejad, J.S. Lee and H.G. Lee</i>	477
49.12	Energy level and milking frequency at dry-off do not affect colostrogenesis in dairy cows <i>M. Larsen, M.B. Samarasinghe and L.E. Hernández-Castellano</i>	477
49.13	Does dam nutrition during prepubertal phase affect muscle gene expression in male foetal progeny? <i>J.M. Clariget, K. Keogh, A.K. Kelly and D.A. Kenny</i>	478
49.14	Effect of maternal <i>Solanum glaucophyllum</i> intake on suckling piglet growth and muscle gene expression <i>K. Giller and I.D.M. Gangnat</i>	478
49.15	Influence of <i>in utero</i> undernutrition on beef heifer performance up to their first lactation <i>A. Noya, I. Casasús, J. Ferrer, L. López De Armentia and A. Sanz</i>	479

## Session 50. Novel developments of milk removal in conventional, automated and cow-calf contact systems

Room: Pischä + Parsenn

Chair: Bruckmaier

Session type: Theme session

#### Theatre Session 50

#### Book of Abstracts page

14:30	Back to the future: re-introduction of cow-calf contact into dairy farming requires new knowledge <i>invited K. Barth</i>	479
15:00	Strategies for keeping dairy cows and calves together on European farms <i>H. Eriksson, N. Fall, A. Priolo, M. Caccamo, A. Michaud, D. Pomies, B. Fuerst-Waltl, R. Weissensteiner, C. Winckler, A. Spengler Neff, A. Bieber, C. Schneider, T. Sakowski, M. Stachelek, S. Ivemeyer, C. Simantke, U. Knierim and K. Alvåsen</i>	480

15:15	Calf or grass if the cow gets to choose? <i>E. Ternman, M. Hellström and H. Eriksson</i>	480
15:30	Evaluating bonding and maternal behaviour of Swedish dairy cows in a cow-calf-contact system <i>E. Svensson, E. Verbeek, S. Agenäs and D. De Oliveira</i>	481
15:45	Effects of two different separation strategies on AMS milk production in a cow-calf contact system <i>J. Sørby, S. Ferneborg, J.F. Johnsen and S.G. Kischel</i>	481
16:00	Effects of two weaning and separation methods on milk yield of dams nursing their calf <i>K. Barth, A. Vogt, U. König Von Borstel and S. Waiblinger</i>	482
16:15	Coffee break	
16:45	End-of-milking fat content in a cow-calf contact system with automatic milking <i>S. Ferneborg, J.F. Johnsen and J. Sørby</i>	482
17:00	The cow and the machine – developments, interactions and test methods <i>invited M.D. Rasmussen</i>	483
17:30	Teat end hyperkeratosis and milking induced change in teat wall thickness in a cow-calf system <i>J. Dahlberg, J. Lilja and S. Agenäs</i>	483
17:45	Prestimulation or milk flow adjusted vacuum and pulsation settings to optimize milking efficiency? <i>M. Tuor, B. Jenni, O. Wellnitz and R.M. Bruckmaier</i>	484
18:00	Physiological considerations for optimal control of vacuum level during milking <i>D.J. Reinemann and C.O. Paulrud</i>	484
17:15	Teat cup detachment affects milking characteristics in AMS with cleaning and milking in the same cup <i>I. Lüdi and R.M. Bruckmaier</i>	485

### Poster Session 50

### Book of Abstracts page

50.13	Milking permission and performance on a pasture based automatic milking system <i>B. O' Brien and P. Silva Bolona</i>	485
50.14	Relationship between cows' daily milk yield and daily rumination time in an automatic milking system <i>L.T. Csiszter, S.E. Erina, S. Baul, V.P. Vancea, R.I. Neamț, D. Gavojdian and D.E. Ilie</i>	486
50.15	Flow-adjusted automatic stimulation versus standard pre-milking routines <i>M. Wiedemann and C.O. Paulrud</i>	486

## Session 51.

## Organic production of milk and meat

Room: Seehorn

Chair: De Marchi / Maurer

Session type: Project session

### Theatre Session 51

### Book of Abstracts page

14:30	Current use of contentious inputs in European organic animal production <i>invited S. Athanasiadou, C. Chylinski, B. Moeskops, D. Michie, C. Experton, H. Steinshamn, F. Leiber and V. Maurer</i>	487
14:45	Perception of organic livestock farmers about the organic farming situation in Europe <i>C.L. Manuelian, F. Righi, S. Valleix, H. Bugaut, B. Fuerst-Waltl, N. Katsoulas, L. Da Costa, S. Burbi, M. Penasa and M. De Marchi</i>	487
15:00	Mineral concentrations in milk from organic and conventional dairy herds in the South England <i>S. Stergiadis, N. Qin, G. Faludi, S. Beauclercq, J. Pitt, N. Desnica, A. Petursdottir, E.E. Newton, A. Angelidis, D.I. Givens, D. Humphries, H. Gunnlaugsdottir and D. Juniper</i>	488

15:15	NMR spectroscopy as a tool to discriminate between organic and conventional cow milk <i>M. Franzoï, M. Ghetti, G. Meoni, L. Tenori, P. Turano, C. Luchinat, V. Vigolo, M. Penasa and M. De Marchi</i>	488
15:30	Plant feed additives as natural alternatives to synthetic antioxidant vitamins in organic livestock <i>F. Righi, R. Pitino, M. Simoni, C.L. Manuelian, M. De Marchi and E. Tsiplakou</i>	489
15:45	Revision of vitamin E recommendations for ruminants in organic agriculture <i>H. Steinshamn and F. Leiber</i>	489
16:00	<i>Scutellaria baicalensis</i> extract: effects on intake, health status and performances of beef cattle <i>M. Simoni, C.L. Manuelian, A. Goi, E. Tsiplakou, M. De Marchi and F. Righi</i>	490
16:15 Coffee break		
16:45	Organic pig and poultry farmers' attitudes towards ration planning <i>S. Hoischen-Taubner, M. Krieger, L. Blume and A. Sundrum</i>	490
17:00	Amino acid supply of slow- and fast-growing female turkeys in organic production <i>S. Göppel, P. Weindl, B. Thesing, C. Wild, C. Lambertz, E. Schmidt and G. Bellof</i>	491
17:15	Effect of 100% organic feeding on performance, carcass composition and fat quality of fattening pigs <i>N. Quander-Stoll, D. Bautze, W. Zollitsch, F. Leiber and B. Früh</i>	491
17:30	From the lab to the farm: using a multi-actor approach to foster sustainable parasite control <i>S. Athanasiadou, C. Chylinski, A. Allamand and V. Maurer</i>	492
17:45	Anthelmintic efficacy of heather extracts against ovine gastro-intestinal nematodes <i>F. Shepherd, C. Chylinski, M. Hutchings, R. Kelly, A. MacRae, J.-P. Salminen, V. Maurer, H. Steinshamn, S. Fittje, A. Morell Perez and S. Athanasiadou</i>	492
18:00	<i>Duddingtonia flagrans</i> : a promising biocontrol agent for gastrointestinal nematodes <i>V. Maurer, S. Athanasiadou, T. Oberhänsli, F. Shepherd, S. Thüer and S. Werne</i>	493
<b>Poster Session 51</b>		<b>Book of Abstracts page</b>
51.14	Requirement recommendations for riboflavin in organic broilers <i>F. Leiber, N. Quander-Stoll, H. Ayrlé, Z. Amsler, V. Maurer, J. Leopold, K. Damme and C. Lambertz</i>	493
51.15	Animal health and welfare planning for European organic dairy herds – development and expansion <i>M. Walkenhorst, V. Maurer, S. Athanasiadou, K. Still, D. Yanez-Ruiz, A. Fauriat, E. Chemin, O. Tavares and C. Experton</i>	494
51.16	<i>In vitro</i> testing of plant extracts and essential oils as antimicrobials in organic farming <i>G. Grandi, C. Spadini, M. Iannarelli, M. De Marchi, C.L. Manuelian, R. Pitino, M. Simoni, C.S. Cabassi and F. Righi</i>	494
51.17	Evaluating the impact of essential oils on bovine mammary alveolar tissue cells <i>in vitro</i> <i>C. Chylinski, O. Tavares, C. Experton, A. Fauriat and S. Athanasiadou</i>	495
51.18	Selecting botanicals for mastitis control: efficacy and safety characterization of essential oils <i>O. Tavares, C. Experton, A. Fauriat, M. Guiaudeau, D. Bellenot, E. Chemin, P. Sulpice and B. Lemaire</i>	495



## Session 52.

## Joint EAAP/ADSA session 'Future of housing for cattle' – part 2

Room: Wisshorn

Chair: Costa / Klopčič

Session type: Freewalk session

	<b>Theatre Session 52</b>	<b>Book of Abstracts page</b>
14:30	Climate-Care-Cattle farming systems: introduction and first results of the CCC farming project <i>P.W.G. Groot Koerkamp, P.J. Galama and A. Kuipers</i>	496
15:00	Consumer acceptance and willingness to pay for cow housing systems in eight EU countries <i>M. Waldrop, M. Klopčič and J. Roosen</i>	496
15:30	<b>invited</b> The future of dairy calf housing: group housing systems and the use of precision technologies <i>J.H.C. Costa, M. Cantor, M.M. Woodrum Setser and H.W. Neave</i>	497
16:00	How to reduce GHG emission – latrine training of dairy calves <i>N. Dirksen, J. Langbein, L. Schrader, B. Puppe, D. Elliffe, K. Siebert, V. Röttgen and L. Matthews</i>	497
16:15	Coffee break	
16:45	Phenotypic and genomic analyses of microscopic differential cell counts in compost bedded pack barns <i>K. Brüggemann, P. Wagner, T. Yin, P. Engel, C. Weimann and S. König</i>	498
17:00	Characteristics of solid manure from freewalk housing compared to slurry, and appreciation by farmer <i>J.C. Van Middelkoop, W. Van Dijk and P.J. Galama</i>	498
17:15	Individual cow methane emissions in freewalk farming systems and associations with breeding traits <i>L. Fehmer, J. Herold, P. Engel and S. König</i>	499
17:30	Innovations in bedded pack barns <i>Y. Sprecher and P.J. Galama</i>	499
18:00	Towards dairy housings providing animal welfare and reduced ammonia emissions <i>S. Schrader, K. Zeyer, F. Hildebrandt, J. Mohn and M. Zähler</i>	500
18:15	RCT shows living space impacts the reproductive and yield performance of housed dairy cows <i>J.S. Thompson, C. Hudson, R. Robinson, N. Bollard, K. Woad, J. Huxley, J. Kaler and M.J. Green</i>	500

## Session 53. Good health of pigs and poultry: increasing robustness through feeding and management - part 2

Room: Studio

Chair: Trevisi / Minozzi

Session type: Theme session

	<b>Theatre Session 53</b>	<b>Book of Abstracts page</b>
14:30	Nematode infections in chickens: impact and challenges <i>G. Das</i>	501
15:00	<i>In vitro</i> evaluation of the anthelmintic potential of plant extracts against <i>Ascaridia galli</i> <i>I. Pouloupoulou, L. Palmieri, E. Martinidou, S. Martens, P. Fusani, B. Siewert, V. Temml, M.J. Horgan, H. Stuppner and M. Gauly</i>	501
15:15	Immunomodulatory and performance-enhancing effects of dietary resin acids in broiler chickens <i>H. Kettunen, S. Vartiainen, K. Vienola, J. Apajalahti and J. Vuorenmaa</i>	502

15:30	Assessment of the capacity of sepiolitic clay (E 563) to adsorb aflatoxin B1 in poultry diets <i>Z. Amanzougarene and J.I. Tolosa</i>	502
15:45	Impact of black soldier fly larvae oil in slow growth broiler diet on breeding and meat parameters <i>M. Bézagu, C. Phan Van Phi, C. Crepelle, M. Bournaison, L. Warin, E. Pampouille, M. Walraven and M. Lefranc</i>	503
16:00	<i>In ovo</i> modulation of 'muscle health' with synbiotics – effect on vascularization and myopathies <i>J. Bogucka, M. Stanek and K. Stadnicka</i>	503

16:15 Coffee break

16:45	Panel discussion <i>P. Trevisi</i>	504
-------	---------------------------------------	-----

### Poster Session 53

### Book of Abstracts page

53.08	Impact of feeding oregano, sage and lavender essential oils on broiler gut microbiota community <i>I. Skoufos, E. Bonos, I. Giannenas, K. Fotou, A. Tsinas, A. Nelli, A. Katrachouras, E. Sidiropoulou, L. Chatzizisis and A. Tzora</i>	504
53.09	Probiotics potential and microencapsulation of lactic acid bacteria as potential source for poultry <i>M. Dumitru, I. Sorescu, D. Vodnar, S. Elemer, G. Ciurescu and M. Habeanu</i>	505
53.10	The impact of tributyrin and essential oils on broiler chicken cecum microbiota populations <i>E. Bonos, I. Skoufos, K. Fotou, S. Skoufos, A. Karamoutsios, A. Nelli, A. Mpakolas, A. Tsinas, I. Giannenas and A. Tzora</i>	505
53.11	The effect of hatching system on serum diamine oxidase levels in chicks <i>I. Dieryck, J. De Backere and J. Paeshuyse</i>	506
53.12	Evaluation of the current model for environmental risk assessment of antibiotics in the EU <i>R. Haupt, C. Heinemann, M. Guse and J. Steinhoff-Wagner</i>	506
53.13	Standardized natural essential oils prove their repellent effect on chewing lice <i>H. Bui, C. Vandenbossche, I. Chiu, M.A. Benarbia and P. Chicoteau</i>	507
53.14	Saponins and citroflavonoids reduced growth of <i>Histomonas meleagridis</i> <i>in vitro</i> <i>M.E.A. Benarbia, P. Engler and P. Chicoteau</i>	507

## Session 54.

## Sheep and goats management and reproduction

Room: Sertig

Chair: Hadjipavlou

Session type: Theme session

### Theatre Session 54

### Book of Abstracts page

14:30	SheepNet: the technical and practical knowledge reservoir to increase EU sheep productivity <i>T.W.J. Keady, C. Morgan-Davies, I. Beltrán De Heredia, A. Carta, D. Gavojdian, S. OcAk and J.M. Gautier</i>	508
14:45	Response to male effect in two Greek indigenous sheep breeds, Karagouniko and Florina <i>I.A. Giantsis, G. Symeon, D. Antonopoulou and M. Avdi</i>	508
15:00	Factors influencing the short term ovarian response of milking Lacaune ewes to the male effect <i>N. Debus, E. Laclef, A. Lurette, M. Alhamada, A. Tesniere, E. González-García, J.B. Menassol and F. Bocquier</i>	509
15:15	Oestrus and fertility responses in ewes treated with modified Ovsynch and progesterone therapy <i>H.O. Nafriya, H. Singh, R. Dutt and L.C. Ranga</i>	509

15:30	Influence of heat synchronization and feeding programs on reproductive performances of Awassi sheep <i>P. Jarrouj, S. Wehbe, K. Hosheimy and R. El Balaa</i>	510
15:45	Development of diagnostic tests for subclinical mastitis in sheep at the point of care <i>D. Vassilakos, E. Dalaka, A.I. Kalogianni, M. Moschovas, A.I. Gelasakis, I. Politis and G. Theodorou</i>	510
16:00	Inclusion of sainfoin in the fattening concentrate: performance and carcass traits of light lambs <i>C. Baila, M. Joy, M. Blanco, I. Casasús, G. Ripoll and S. Lobón</i>	513

#### 16:15 Coffee break

16:45	The use of olive cake by-product in ruminant diets <i>O. Tzamaloukas, M.C. Neofytou, P.E. Simitzis, D. Sparaggis and D. Miltiadou</i>	511
17:15	Influence of synchronisation protocols and feeding programs on vaginal flora of Awassi sheep <i>S. Wehbe, P. Jarrouj, K. Hosheimy, C. Iskandar and R. El Balaa</i>	512
17:30	Effect of the presence of adult companion animals on rumen microbial colonization in goat kids <i>J.M. Palma-Hidalgo, E. Jimenez, A.I. Martin-Garcia, D.R. Yanez-Ruiz and A. Belanche</i>	512
17:45	Ultrasound measurements of eye muscle depth in rams of two sheep breeds in Slovenia <i>M. Bizjak, G. Gorjanc and M. Simčič</i>	513
18:00	Evaluation of a multi-actor farm team in prudent use of antibiotics in French and Greek dairy sheep <i>E. Royer, A. Mavrommatis, F. Leen, L. Delaisse, E. Tsiplakou, H. Ferreira and G. Zervas</i>	511

#### Poster Session 54

#### Book of Abstracts page

54.13	How omega 3 enriched diets of sheep affect the microbiota of produced kefalograviera cheese <i>A. Tzora, E. Bonos, I. Giannenas, K. Fotou, A. Karamoutsios, A. Nelli, E. Sidiropoulou, D. Lazari, K. Grigoriadou and I. Skoufos</i>	514
54.14	Seasonal variation of Selenium, manganese, zinc and copper concentration in milk of Sarda dairy ewes <i>M.F. Guiso, G. Battacone, L. Canu, M. Deroma, I. Langasco, G. Sanna, G. Pulina and A. Nudda</i>	514
54.15	The effect of concentrate supplementation on grazing or housed lamb carcass and meat quality <i>A. Cividini</i>	515
54.16	Evaluation of Avocado ( <i>Persea americana</i> , Laureceae) by-products for Ruminants Feeding <i>I. Martín-García, A. Belanche, J.M. Palma-Hidalgo, P. Romero and D.R. Yáñez-Ruiz</i>	515
54.17	Does carob inclusion in lambs diet affect rumen parakeratosis and faecal dry matter digestibility? <i>J. Pelegrin-Valls, B. Serrano-Pérez, M.J. Martín-Alonso, E. Molina and J. Álvarez-Rodríguez</i>	516

# Scientific programme

## Thursday 2 September

### Session 55.

### Sustainable Insect Chain (H2020 SUSINCHAIN)

Room: Davos

Chair: Veldkamp / Gasco

Session type: Project session

Theatre Session 55	Book of Abstracts page
8:00 Barriers and risks for large-scale commercialization of insect proteins for food and feed in Europe <i>F. Alleweldt, S. Kara, H.H. Niyonsaba, J. Höhler, H.J. Van Der Fels-Klerx, M.P.M. Meuwissen, B.A. Rumpold, M. Nikravec, N. Langen, M. Peters, R. Zanolli and A.I.A. Costa</i>	516
8:30 Upscaling insect rearing: key results and future prospects <i>D. Deruytter, C.L. Coudron, J. Van Schelt, G. Zorzetto, J. Krause, G. Marklewitz, A. Wegereef, M. Dudek, P. Gobbi, D.A. Peguero, A. Mathys, M. Camara-Ruiz, S. Rojo, C. Steinhausen, J.L. Rukov, A.B. Jensen and M. Van Der Borght</i>	517
9:00 Insect processing technologies investigated in the H2020 project SUSINCHAIN <i>L. Van Campenhout, D. Vandeweyer and M. Van Der Borght</i>	517
9:45 Coffee break	
10:15 'Insects in animal feed': structure, aims and preliminary results of digestibility trials <i>L. Gasco, E.-J. Lock, S. Chatzifotis, A. Jansman, A. Schiavone and T. Veldkamp</i>	518
10:45 Insects for food: can insect-based food products be part of a regular dinner in Europe? <i>N. Roos, L. Aquilanti, M. Van Der Borght, I.E. Chiriach, L.M. Cunha, R. Flore, C. Maya, A. Osimani, M. Peters, J.L. Rukov, Y. Sun, D. Vanderweyer, T. Veldkamp and A.I.A. Costa</i>	518
11:15 Safety of insect for feed and food investigated in the H2020 project SUSINCHAIN <i>H.J. Van Der Fels-Klerx, E.F. Hoek-Van Den Hil, N. Meijer, D. Vandeweyer, L. Van Campenhout and M. Bosch</i>	519
11:45 Building economic and environmental optimization model of sustainable insect chains <i>S. Smetana, S.M. Hossaini, D.A. Peguero, A. Green, A. Mathys, A. Tonda and V. Heinz</i>	519

### Session 56.

### Free communications: Crossbreeding - Conservation of local breeds

Room: Aspen 1&2

Chair: Hinrichs

Session type: Working group session

Theatre Session 56	Book of Abstracts page
8:00 Genomic predictions of crossbred dairy cows based on breed of origin of alleles <i>J.H. Eiriksson, K. Byskov, J.R. Thomassen, G. Su and O.F. Christensen</i>	520
8:15 Predicting of the purebred-crossbred genetic correlation using marker data in parental lines <i>P. Duenk, P. Bijma, Y.C.J. Wientjes and M.P.L. Calus</i>	520
8:30 Comparing growth and feed intake in pure- and crossbred heifers fed different energy concentrations <i>K. Johansen, L. Hein, P. Spleth, M. Vestergaard, H.M. Nielsen and M. Kargo</i>	521
8:45 Simulation study on rotational crossbreeding and advanced OCS methods in dairy cattle <i>J. Stock, H. Esfandyari, D. Hinrichs, R. Wellmann and J. Bennewitz</i>	521

9:00	Simulating common breeding schemes for local and mainstream Red dairy cattle breeds across Europe <i>M. Slagboom, H. Liu, C. Schmidtman, J.R. Thomasen and M. Kargo</i>	522
9:15	Impact of kinship matrix in genomic optimum contribution selection on allelic diversity in cattle <i>E. Gautason, G. Sahana, B. Gulbrandsen and P. Berg</i>	522
9:30	Performance of genomic selection conducted from different base populations <i>D. Bersabé, B. Villanueva, A. Caballero, M.A. Toro and J. Fernández</i>	523

#### 9:45 Coffee break

10:15	Using high-density SNP data to unravel the origin of the Franches-Montagnes horse breed <i>A.I. Gmel, R. Von Niederhäusern, A. Ricard, V. Gerber and M. Neuditschko</i>	523
10:30	Genome wide association studies of growth traits in grazing Rasa Aragonesa ewes <i>K. Lakhssassi, C. Meneses, P. Sarto, J.H. Calvo and M. Serrano</i>	524

#### Poster Session 56

#### Book of Abstracts page

56.10	Polymorphisms at leptin and pituitary transcription factor genes in four beef cattle crossbreeds <i>I. Nicolae, D.E. Ilie, D. Gavojdian and R.I. Neamt</i>	524
56.11	Use of crossbreeding with Angus and Belgian Blue bulls in dairy herds <i>D. Gavojdian, I. Nicolae and M. Mincu</i>	525
56.12	Strengthening the added value of rare breeds in Poland <i>E. Sosin and A. Chelmińska</i>	525
56.13	Possibilities of meat use of autochthonous breed beef the Polish Red <i>K.K. Wiśniewski and B. Kuczyńska</i>	526

## Session 57.

## Exploiting sequence data

Room: Schwarzhorn

Chair: Berg

Session type: Theme session

#### Theatre Session 57

#### Book of Abstracts page

8:00	131 deeply sequenced cattle trios reveal parent-of-origin effects in de novo structural variations <i>Y.-L. Lee, G. Costa Monteiro Moreira, L. Karim, E. Mullaart, W. Coppieters, R.F. Veerkamp, M.A.M. Groenen, M. Bosse, A.C. Bouwman, M. Georges and C. Charlier</i>	526
8:30	Evidence of rare misassemblies in the bovine reference genome revealed by population genetic metrics <i>S. Qanbari, R. Schnabel and D. Wittenburg</i>	529
8:45	Bisulfite vs nanopore long-reads to sequence the dairy cattle epigenome <i>A. López-Catalina, A. Bach, M. Gutiérrez-Rivas and O. González-Recio</i>	527
9:00	Benchmarking phasing software with whole-genome sequenced cattle trios <i>C. Oget-Ebrad, N. Kadri, G. Costa Monteiro Moreira, L. Karim, W. Coppieters, M. Georges and T. Druet</i>	528
9:15	Effects of adding large scale custom genotypes on genomic prediction accuracy <i>F.R. Seefried, I.M. Häfliger, C. Drögemüller and M. Spengeler</i>	528
9:30	<i>Bos taurus</i> introgressed segments in the UOA <i>Bos indicus</i> assembly <i>M. Naji, Y. Utsunomiya, J. Soelkner, B. Rosen and G. Meszaros</i>	529

9:45 Coffee break

- 10:15 CNV impact on gene expression 527  
*M. Mielczarek, M. Frąszczak, A. Zielak-Steciwo, B. Nowak, B. Hofman, J. Pierścińska and J. Szyda*
- 10:30 En route to routine genotyping by low-pass sequencing in Swiss pig breeds 530  
*A. Nosková, M. Bhati, N.K. Kadri, D. Crysanto, S. Neuenschwander, A. Hofer and H. Pausch*
- 10:45 Preliminary genomic analysis of robustness in a mice population 530  
*N. Formoso-Rafferty, J.P. Gutiérrez, I. Álvarez, F. Goyache and I. Cervantes*

### Poster Session 57

Book of Abstracts page

- 57.10 *De novo* genome assembly of the red-legged partridge (*Alectoris rufa*) 531  
*G. Forcina, B. Chattopadhyay, K.M. Garg, M. Irestedt, M. Guerrini, F. Barbanera and F.E. Rheindt*

## Session 58.

## Animal behaviour: from horses to hens

Room: Jakobshorn

Chair: Boyle / Dantas de Brito Almeida / Mantovani

Session type: Theme session

### Theatre Session 58

Book of Abstracts page

- 8:00 New methodological approaches in ethology: social information in equine movement gestalt 531  
*C. Wyss, C.D. Dahl, K. Zuberbühler and I. Bachmann*
- 8:15 Do horses perform social referencing with their owner? 532  
*H. Sutter, S. Briefer Freymond, A.-L. Maigrot and I. Bachmann*
- 8:30 Do rider-horse pairs have similar personality traits? 532  
*S. Briefer Freymond, A. Maigrot, H. Sutter, C. Chariatte and I. Bachmann*
- 8:45 The relationship between upper body motion and vertical ground reaction forces in trotting horses 533  
*C. Roepstorff, A. Gmel, S. Arpagaus, F.M. Serra Bragança, L. Roepstorff and M.A. Weishaupt*
- 9:00 Head and neck position and behaviour in ridden elite dressage horses in warm-up and test situation 533  
*K. Kienapfel-Henseleit, L. Piccolo, R. Reulke, D. Rueß and I. Bachmann-Rieder*
- 9:15 Mixing feed in compost increases use but not cleanliness of rooting areas for growing-finishing pigs 534  
*M. Knoll, E.A.M. Bokkers, C. Leeb, C. Wimpler, H.M.-L. Andersen, R. Thomsen, B. Früh and M. Holinger*
- 9:30 Effect of sudden noises on gestating sows' behaviour 534  
*C. Gaillard and M. Durand*

9:45 Coffee break

- 10:15 Is a short observation period sufficient for behavioural studies? 535  
*T. Wilder, J. Krieter, N. Kemper and K. Büttner*
- 10:30 Health and behaviour of dairy calves reared with milk from bucket versus mother during four months 535  
*A. Bieber, M. Walkenhorst, R. Eppenstein, J.K. Probst, S. Thuer, C. Baki and A. Spengler Neff*
- 10:45 Differences in pecking behaviour between conventional layer hybrids and dual-purpose hens 536  
*L. Rieke, B. Spindler, I. Zylka, N. Kemper and M.F. Giersberg*

**Poster Session 58****Book of Abstracts page**

58.11	Analysis of biological pathways related to behaviour in Czechoslovakian Wolfdog <i>N. Moravčíková, R. Kasarda, L. Vostrý, H. Vostrá-Vydrová, J. Vašek and D. Čílová</i>	536
58.12	The use of elevated platforms and perches in different heights by pullets during rearing <i>A. Riedel, S. Käslau, N. Kemper and B. Spindler</i>	537
58.13	A pain assessment method for goat kids based on the Grimace scale- <i>C. Trujillo-Ortega, L.E. Hernández-Castellano, S. Martín-Martell, A. Argüello and N. Castro</i>	537

**Session 59.****CYBELE project on high performance computing for precision livestock farming**

Room: Forum

Chair: Maselyne

Session type: Project session

**Theatre Session 59****Book of Abstracts page**

8:00	CYBELE: high performance computing for precision livestock farming <i>S. Davy</i>	538
8:30	A two-step deep learning model for pen-level estimation of slaughter pig live weight distribution <i>D.B. Jensen and F. Hakansson</i>	538
8:45	Video-based classification of agonistic behaviour in pigs using a combination of CNN and RNN <i>F. Hakansson and D. Jensen</i>	539
9:00	Individual pig health monitoring using multivariate analysis on feeding, drinking and weight data <i>C. Vandenbussche, F. Castaldi, B. Sonck, J. Vangeyte and J. Maselyne</i>	539
9:15	Evaluating machine learning techniques applied to the problem of boar taint <i>G. Makridis, E. Heyrman, L. Vanhaecke, F. Tuytens, S. Janssens, N. Buys, M. Aluwé and F. Mavrepis</i>	540
9:30	Enhancing in-line meat processing traceability using deep learning <i>R. Van De Vijver, F. Castaldi, B. Callens, M. Aluwé, R. Klont, J. Vangeyte and J. Maselyne</i>	540
9:45	Coffee break	
10:15	Prediction of pork meat quality parameters with existing hyperspectral devices <i>B.H.R. Callens, S. De Smet, S.R. Cool, F. Castaldi, R. Van De Vijver, E. Kowalski and M. Aluwé</i>	541
10:30	Towards in-line fish species classification in beam-trawl fisheries for real time stock assessment <i>R. Van De Vijver, F. Castaldi, K. Sys, H. Polet, H. Lenoir, J. Vangeyte and J. Maselyne</i>	541
10:45	Applying machine learning to production data from aquaculture to predict fish growth <i>S. Davy and K. Matuleviciute</i>	542

## Session 60. European collaboration in research towards sustainable pig production

Room: Sanada 1&2

Chair: Millet

Session type: Discovery session

Theatre Session 60		Book of Abstracts page
9:00	Sustainable pig production systems: the SusPigSys system approach <i>invited</i> S. Dippel, M. Gębska, S. Hörtenhuber, C. Hubbard, C. Leeb, K. De Roest, H. Spooler, A. Valros and The Suspigsys Team	542
9:30	Improving pig production: a whole system approach – insights and proposals from PigSys <i>invited</i> B. Sturm, N. Quiniou, L. Brossard, K.H. Jeppsson, K. Myllerup, A. Zacepins, S. Müller, G. Pexas, A. Nasirahmadi, V. Komasilovs, A.C. Olsson, K. Dominiak, S. Raut, F. Udesen, M. Marcon and S. Edwards	543
10:00	PEGaSus: Phosphorus efficiency in pig and chicken – An animal-centred view on the phosphorus cycle <i>invited</i> M. Oster, H. Reyer, C. Mulvenna, D. Fornara, E. Ball, H.D. Poulsen, N. Ekane, A. Rosemarin, L. Arata, A. Chakrabarti, P. Sckokai, E. Magowan and K. Wimmers	543
10:30 Coffee break		
11:00	Sustainability in pork production with immunocastration <i>invited</i> V. Stefanski, M. Aluwe, M. Čandek-Potokar, P. Ingenbleek, E. Kostyra, E. Labussiere, H. Maribo, S. Millet, M. Skrlep, A. Van Den Broeke, M. Vrecl, S. Zakowska-Biemans and The Susi Team	544
11:30	PIGWEB: an infrastructure for experimental research for sustainable pig production <i>invited</i> J. Van Milgen, S. Millet, R. Westin, C. Larzul, C. Kaya, J.V. Nørgaard, C.C. Metges and G. Bee	544

## Session 61. Workshop: Meta-analysis applied to animal science

Room: Pischä + Parsenn

Chair: Tzamaloukas

Session type: Early-career scientist's session

Theatre Session 61		Book of Abstracts page
9:00	Principles and practices of meta-analysis applied to animal science V.A.P. Cadavez	545
9:30	Meta-analysis and mechanistic modelling D. Sauvant and C. Loncke	545
Poster Session 61		
61.03	Environmental enrichment reduces feather damage in laying hens: a meta-analysis N. Van Staaveren, J. Ellis, C.F. Baes and A. Harlander	546

## Session 62. Joint EAAP/ADSA session 'Future of housing for cattle' – part 3

Room: Wisshorn

Chair: Costa / Klopčič

Session type: Freewalk session

Theatre Session 62		Book of Abstracts page
9:00	Dairy cattle housing and management for warm climates A. De Vries and I.M.M. Toledo	546
9:15	Performances of mechanical ventilation in dairy farms B. Fagoo	547



9:30	Comfort assessment through different ear positions in Murrah buffalo calves <i>S. Jamwal, P.J. Singh, M.L. Kamboj, R. Rajneesh and R. Rath</i>	547
9:45	The effect of floor type on the performance and behaviour of housed finishing beef steers <i>C.E. McGettigan, M. McGee, E.G. O'Riordan, A.K. Kelly and B. Earley</i>	548
10:00	Antibiotic use in cubicle and freewalk housing systems from 2005 to 2017 in the Netherlands <i>A. Kuipers and P.J. Galama</i>	548
10:15	Compost bedding pack barns compared to conventional cubicle housing – a multi-criteria analysis <i>V. Kvakkestad, G. Lien and K.A. Hovstad</i>	549
10:45	Coffee break	
11:15	Project FreeWalk highlights and policy implications <i>M. Klopčič, P.J. Galama, I. Blanco Penedo, L. Leso, K. Bruegemann, E. Ofner-Schroeck, M. Waldrop, K. Hovstad, J. Tomka and A. Kuipers</i>	549
11:30	Effect of the temporal evolution of compost-bedded pack performance and microbial counts in dairy cows <i>L. Llonch, A. Ferret and L. Castillejos</i>	550
11:45	Developments in cattle housing in Brazil <i>F.A. Damasceno</i>	550

## Session 63.

## Metabolism, oxidative stress and immune function

Room: Sertig

Chair: Sauerwein / Louveau

Session type: Project session

	Theatre Session 63	Book of Abstracts page
9:00	Rumen bolus containing 1,25(OH)2D3-glycosides for prevention of hypocalcaemia in dairy cows <i>M. Meyer, C. Ollagnier, L. Eggerschwiler, K. Bühler, M. Meylan and P. Schlegel</i>	551
9:15	Characterization of immune and redox system crosstalk in the intestinal tract of suckling lambs <i>J. Pelegrin-Valls, J. Álvarez-Rodríguez, M.J. Martín-Alonso, C. Baila, S. Lobón, M. Joy and B. Serrano-Pérez</i>	551
9:30	MiRNAs in milk exosomes are differentially expressed based on the health status of the mammary gland <i>E. Scarsella, M. Cintio, A. Zeconi and B. Stefanon</i>	552
9:45	<i>Scutellaria baicalensis</i> extract reduced mammary epithelial cell apoptosis in milk of dairy cows <i>L. Nicolas, P. Roussel, P. Debournoux, R. Resmond, A. Le-Mouel, A.C. Dall Orsoletta, A. Steen, F. Robert and M. Boutinaud</i>	552
10:00	Pegbovigrastim injections altered the immunometabolic state of cows when administered at dry off <i>J.M. Strickland, J.L. De Campos, P.L. Ruegg and L.M. Sordillo</i>	553
10:15	Associations among fertility, mRNA expressions and profiles of cytokines in endometritic buffaloes <i>H. Singh, P.S. Brar, D. Deka, N. Singh and A.K. Arora</i>	553
10:30	Sperm motility and plasma membrane stability rely on aquaporins function in boar sperm capacitation <i>A. Delgado-Bermúdez, S. Recuero, A. Sandu, I. Barranco, J. Ribas-Maynou and M. Yeste</i>	554
10:45	Coffee break	
11:15	The role of oxidative stress and autophagy in meat quality defects <i>L. González-Blanco, V. Sierra, Y. Diñeiro, M.J. García, A. Coto-Montes and M. Oliván</i>	554
11:30	Effects of different levels of milk replacer for 14 weeks on mammary gland development in heifers <i>K.D. Seibt, T. Scheu, C. Koch, M.H. Ghaffari and H. Sauerwein</i>	555

**Poster Session 63****Book of Abstracts page**

63.10	The effect of inclusion rate of concentrates and exogenous butyrate on stomach measurements in sheep <i>S. Świerk, M. Przybyło, R. Miltko, J. Flaga, E. Molik and P. Górka</i>	555
63.11	Bioavailability of three different rumen undegradable methionine sources in dairy cows <i>in vivo</i> <i>A. Kihal, M.E. Rodriguez-Prado and S. Calsamiglia</i>	556
63.12	Mitochondrial activity during satellite cell differentiation in piglets <i>K. Stange, A. Vincent, I. Louveau, M.H. Perruchot, M. Rontgen and F. Dessauge</i>	556
63.13	Expression of selected miRNAs and their common target genes in dairy cows' mammary gland parenchyma <i>E. Bagnicka, E. Kawecka-Grochocka, M. Zalewska, M. Rzewuska, T. Sakowski, K. Pawlina-Tyszko and T. Ząbek</i>	557
63.14	<i>In vivo</i> bioavailability estimates of different rumen-protected lysine products for dairy cattle <i>A. Kihal, C. Marques, M.E. Rodriguez-Prado and S. Calsamiglia</i>	557
63.15	<i>In vivo</i> bioavailability of rumen-protected methionine supplement in lactating dairy cows <i>F. Francia, A. Kihal, A. Belaid, M.E. Rodriguez-Prado and S. Calsamiglia</i>	558
63.16	Ketotic hepatocytes are less resistant to effect of zearalenone on expression of glucose metabolism <i>J. Barć, O. Lasek and Z.M. Kowalski</i>	558
63.17	Single nucleotide polymorphisms density in bovine genomes reveals their role in the immune response <i>M. Frąszczak, P. Grzesiak, M. Mielczarek and J. Szyda</i>	559

**Session 64.****Sustainable Insect Chain (H2020 SUSINCHAIN)**

Room: Davos

Chair: Veldkamp / Gasco

Session type: Project session

**Theatre Session 64****Book of Abstracts page**

13:30	Barriers, risks, and opportunities for scaling up the European insect value chain <i>H.H. Niyonsaba, J. Höhler, H.J. Van Der Fels - Klerx, F. Alleweldt, S. Kara, R. Zanolli, A.I.A. Costa, M. Peters and M.P.M. Meuwissen</i>	559
13:45	The pH of wetfeed: does it influence the growth of <i>Tenebrio molitor</i> larvae? <i>J. Claeys, D. Deruytter and C. Coudron</i>	560
14:00	Transporting mealworm ( <i>Tenebrio molitor</i> ) eggs: the effect of temperature and relative humidity <i>D. Deruytter, C.L. Coudron and J. Claeys</i>	560
14:15	Optimising transport conditions for <i>A. domesticus</i> nymphs and eggs <i>C. Steinhäuser, J. Rukov, A. Bruun Jensen and A. Lecocq</i>	561
14:30	Vacuum packaging as storage and transport strategy for living or killed black soldier fly larvae <i>D. Vandeweyer, D. Lachi, D. Deruytter, M. Van Der Borgh and L. Van Campenhout</i>	561
14:45	Horizontal transfer of food pathogens from substrate to insects during rearing <i>D. Vandeweyer, D. Lachi, L. Van Moll, E. Gorrens, J. De Smet and L. Van Campenhout</i>	562
15:00	Texturization potential and microbial safety of fresh-frozen insects within high-moisture extrusion <i>L. Leonhardt, V. Lammers and S. Smetana</i>	562

15:15 Coffee break

15:45	Pretreatment strategies to improve insect processing for use as protein rich animal feed ingredient <i>D.A. Peguero, M. Gold, C. Zurbrügg and A. Mathys</i>	563
16:00	Apparent digestibility of different batch of <i>Hermetia illucens</i> meals for rainbow trout <i>C. Caimi, F. Gai and L. Gasco</i>	563
16:15	<i>In vivo</i> and <i>in vitro</i> digestibility of black soldier fly larvae meal in Atlantic salmon <i>G. Radhakrishnan, M.S. Silva, R. Matos, P. Araujo, E.J. Lock, P.A.J. Prabhu and I. Belghit</i>	564
16:30	The nutritional composition of insect-based products for dinners in Europe <i>C. Maya, L. Aquilanti, M. Van Der Borght, I.E. Chiriac, R. Flore, A. Osimani, M. Peters, J.L. Rukov, Y. Sun, D. Vanderweyer, T. Veldkamp and N. Roos</i>	564
16:45	LCA modelling strategies and approaches to insect chains <i>S. Hossaini, R. Spykman and S. Smetana</i>	565
17:00	Multi-objective optimization for sustainable insect chains <i>A. Tonda, A. Green, S.M. Hossaini, A. Mathys, D.A. Peguero and S. Smetana</i>	565

### Poster Session 64

### Book of Abstracts page

64.14	Effects of abiotic factors on viability of BSF eggs: preliminary results for improving egg transport <i>J. Krause, G. Zorzetto, M. Camara-Ruiz, S. Rojo, P. Gobbi and M. Dudek</i>	566
-------	---	-----

## Session 65. Contribution of animal breeding to solving societal challenges

Room: Aspen 1&2

Chair: Rydhmer

Session type: Challenge session

### Theatre Session 65

### Book of Abstracts page

13:30	How animal breeding can help solving societal challenges <b>invited</b> <i>L. Rydhmer</i>	566
13:45	Animal breeding to solve societal pig production challenges? <b>invited</b> <i>S. Zira</i>	567
14:00	Social sustainability in aquaculture <b>invited</b> <i>G.D. Stentiford</i>	567

## Session 66. Interaction between host genetics and gastro-intestinal tract microbiota genetics

Room: Schwarzhorn

Chair: Abdennebi-Najar

Session type: Theme session

### Theatre Session 66

### Book of Abstracts page

13:30	Interplay between host genetics and the dynamics of the gut microbiota in pigs <b>invited</b> <i>C. Rogel-Gaillard, J. Estellé, M. Borey and C. Larzul</i>	568
14:00	Gut microbiome information enables additional discovery in genome-wide association studies in pigs <i>F. Tiezzi and C. Maltecca</i>	568

14:15	The microbial metabolome and its role in intramuscular fat deposition <i>A. Zubiri-Gaitán, A. Blasco and P. Hernández</i>	569
14:30	The rumen microbiota is modified in lambs divergently selected for residual feed intake <i>Q. Le Graverand, F. Tortereau, A. Meynadier, D. Marcon and C. Marie-Etancelin</i>	569
14:45	Breed differences in microbial composition associated with growth and carcass composition in pigs <i>C. Maltecca, Y. He and F. Tiezzi</i>	570
15:00	Bovine genomes influenced ruminal microbiome composition related to conjugated linoleic acid in beef <i>M. Martínez-Álvaro, C.-A. Duthie, J. Mattock, R.J. Dewhurst, M.A. Cleveland, M. Watson and R. Roehe</i>	570
15:15	Coffee break	
15:45	Microbiome and genetic contribution to the phenotypic variation of digestive efficiency in pig <i>V. Déru, F. Tiezzi, C. Carillier-Jacquin, B. Blanchet, L. Cauquil, O. Zemb, C. Maltecca, A. Bouquet and H. Gilbert</i>	571
16:00	Microbiability and microbiome-wide associations with feed efficiency and performance traits in pigs <i>A. Aliakbari, O. Zemb, C. Barilly, Y. Billon and H. Gilbert</i>	571
16:15	Effect of heat stress on faecal microbiota composition of gestating sows and of the female offspring <i>A.M. Serviento, D. Renaudeau, M. Castex and O. Zemb</i>	572
16:30	Multi-ome analysis to predict feed efficiency in pigs <i>L.M.G. Verschuren, A.J.M. Jansman, J. Van Milgen, O. Zemb, M.S. Hedemann, R. Bergsma and M.P.L. Calus</i>	572
16:45	Swine growth and carcass traits predicted in nucleus purebred using microbial information collected <i>C. Maltecca and F. Tiezzi</i>	573

#### Poster Session 66

#### Book of Abstracts page

66.12	Estimation of genetic parameters for ruminal bacteria in Lacaune dairy ewes <i>G. Martinez Boggio, A. Meynadier, C. Allain and C. Marie-Etancelin</i>	573
66.13	Ruminal metabolism study of dairy ewes to link the ruminal microbiota and milk quality <i>S. Fresco, C. Marie-Etancelin, A. Meynadier, C. Allain and G. Martinez Boggio</i>	574

## Session 67.

## Challenges and novel metrics of multi objective tools at farm/regional level

Room: Jakobshorn  
Chair: Zehetmeier / Puillet  
Session type: Challenge session

#### Theatre Session 67

#### Book of Abstracts page

13:30	Assessing livestock systems – how indicators, system boundaries and methods may influence results <i>A. Muller</i>	574
	<b>invited</b>	
14:00	Combining farm-level modelling and environmentally-extended input-output analysis in beef production <i>M.P. Dos Santos, T.G. Morais, T. Domingos and R.F.M. Teixeira</i>	575
14:15	Environmental, economic and social metrics to enhance the sustainability of livestock systems <i>A. Aubry, R. McGuire, J. Birnie, N. Scollan and S. Morrison</i>	575
14:30	Emergy analysis of the sustainability of mountain grazing livestock systems <i>E. Muñoz-Ulecia, A. Briones-Hidrovo, A. Bernués, I. Casasús and D. Martín-Collado</i>	576

14:45	A refined method for calculating ruminant Livestock Units to improve farm performance analysis <i>M. Benoit and P. Veysset</i>	576
15:00	Challenges and novel metrics of multi-dimensional tools at farm/regional level <i>L. Puillet</i>	577
15:15	Coffee break	
15:45	Livestock production within planetary boundaries: the need to look beyond the farm <i>C. Pfeifer</i>	577
16:00	Sustainability assessment of farms using SALCA sustain methodology <i>A. Roesch</i>	578
16:15	EcoCliCk – a web-based tool to transfer knowledge of GHG mitigation costs <i>A. Karer, V. Karger, A. Reindl and M. Zehetmeier</i>	578
16:30	Social-media friendly dashboards for communicating trade-offs related to animal production systems <i>F. Accatino</i>	579
16:45	Discussion on challenges and future research needs of models and tools applied to LFS <i>M. Zehetmeier</i>	579

### Poster Session 67

### Book of Abstracts page

67.12	Assessment of the non-return rate using a codification of the insemination suitability <i>L. Von Tavel, S. Buri, S. Wegmann, J. Berger and M. Kirchhofer</i>	580
-------	---	-----

## Session 68. PLF MIR tools to monitor cows' welfare in particular the freedom from disease, hunger and stress (in collaboration with HappyMoo project)

Room: Forum

Chair: Gengler

Session type: Project session

### Theatre Session 68

### Book of Abstracts page

13:30	HappyMoo project – using milk mid-infrared spectrum to predict dairy cows' welfare status <i>J. Leblois, C. Bertozzi, M. Calmels, L. Dale, C. Grelet, C. Lecomte, L. Mirabito, M.-N. Tran, V. Vanden Dries, A. Werner, V. Wolf, F. Dehareng and HappyMoo Consortium</i>	580
13:45	Detecting welfare status in a milk sample: effects of housing modifications on milk spectra <i>M. Bahadi, D. Warner, A.A. Ismail, D.E. Santschi, D.M. Lefebvre, R. Duggavathi and E. Vasseur</i>	581
14:15	Identification of dairy cows chronic stress biomarkers <i>C. Grelet, V. Vanden Dries, J. Leblois, J. Wavreille, L. Mirabito, H. Soyeurt, S. Franceschini, N. Gengler, HappyMoo Consortium and F. Dehareng</i>	581
14:30	Heat stress assessments in dairy cattle based on milk MIR spectral data <i>H. Amamou, M. Mahouachi, A. Werner, N. Gengler, J. Bieger, K. Drössler, H. Hammami, HappyMoo Consortium and L.M. Dale</i>	582
14:45	'MastiMIR' an early warning system based on MIR spectra <i>L.M. Dale, M. Hoenen, E.J.P. Strang, K. Drössler, J. Bieger, HappyMoo Consortium and A. Werner</i>	582
15:00	Predicting mastitis with somatic cell count, differential somatic cell count and milk MIR spectra <i>L. Rienesl, M. Marginter and J. Sölkner</i>	583

15:15 Coffee break

15:45	#Freenotypes: extracting added value from routine milk recording using deep learning	583
<b>invited</b>	<i>S.J. Denholm, W. Brand, M. Busfield, A.P. Mitchell, A.T. Wells, T. Krzyzelewski, S.L. Smith, E. Wall and M.P. Coffey</i>	
16:15	Prediction of dry matter intake of dairy cows across multiple countries and production systems	584
	<i>A. Tedde, C. Grelet, P.N. Ho, J.E. Pryce, D. Hailemariam, Z. Wang, G. Plastow, N. Gengler, E. Froidmont, F. Dehareng, C. Bertozzi and H. Soyeurt</i>	
16:30	HappyMoo – dairy cows lameness prediction through milk mid-infrared spectral analysis	584
	<i>M.-N. Tran, L. Dale, N. Gengler, M. Jattiot, J. Leblois, D. Matthews, U. Schuler, HappyMoo Consortium and M. El Jabri</i>	
16:45	Multiple breeds and countries predictions of mineral contents from milk mid-infrared spectrometrie	585
	<i>O. Christophe, C. Grelet, C. Bertozzi, D. Veselko, C. Lecomte, P. Höckels, A. Werner, F.-J. Auer, N. Gengler, F. Dehareng and H. Soyeurt</i>	
17:00	Developing quantitative traits related to animal health status using a holistic big data approach	585
	<i>S. Franceschini, C. Grelet, C. Bertozzi, N. Gengler, Gpluse Consortium and H. Soyeurt</i>	
17:15	Genetic parameters for milk urea in dual-purpose Belgian Blue cows	586
	<i>H. Atashi, C. Bastin, Y. Chen, S. Vanderick, H. Wilmot and N. Gengler</i>	

### Poster Session 68

### Book of Abstracts page

68.13	Predictive ability of MIR Spectra for detecting non-coagulating milk of Sarda ewes	586
	<i>G. Gaspa, F. Correddu, A. Cesarani, A. Pauciullo and N.P.P. MacCiotta</i>	

## Session 69.

### Improving animal welfare: do we need more regulations, or should the society decide?

Room: Sanada 1&2  
Chair: De Briyne / Boyle  
Session type: Challenge session

## Session 70.

### Improving sustainability of pig production by participatory research

Room: Pischä + Parsenn  
Chair: Aluwé / Bee  
Session type: Challenge session

### Theatre Session 70

### Book of Abstracts page

14:30	Environmental impacts of pork production: what can we learn from life cycle assessment studies?	587
<b>invited</b>	<i>T. Nemecek</i>	
15:00	Sustainable pig production in Switzerland thanks to knowledge building and transfer	587
<b>invited</b>	<i>R. Lühinger, D. Kümmerlen and M. Aepli</i>	
15:30	Concepts, production and marketing of pork animal welfare programs from a slaughterhouse perspective	588
<b>invited</b>	<i>N. Brand and H. Böckmann</i>	
16:00	Transformation towards sustainable pig production systems: how to make a game changer from approach	588
<b>invited</b>	<i>F. Marchand</i>	

16:15 Coffee break

16:45 Round table discussion  
*M. Aluwé and G. Bee*

Room: Seehorn

Chair: Mayer / Klopčič

Session type: Theme session

Theatre Session 71		Book of Abstracts page
14:30	Grass silage for dairy cows: impact of harvest stage on yield, value, production and income <i>invited</i> V. Brocard, E. Tranvoiz and E. Cloet	589
15:00	Environmental cost analysis in organic Dehesa farms (SW Spain) A. Horrillo, M. Escribano, P. Gaspar and C. Díaz-Caro	589
15:15	Farmer and consumer attitudes towards utilizing composting bedding materials from cattle barns M. Klopčič, M.E. Waldrop, A. Kuipers and J. Roosen	590
15:30	Styrian agriculture – the past as a window to the future R. Mayer, E. Reisinger, T. Pichler and J. Lämmerer	590
15:45	The whole and the parts – effects of impaired animal health on farms' economic viability S. Hoischen-Taubner, J. Habel, A. Sundrum, E. Schwabenbauer, V. Uhlig and D. Möller	591
16:00	Assessing nitrogen use efficiency through blood and milk 15N enrichment in grazing dairy cows T. Haak, A. Münger, K.-H. Südekum and F. Schori	591
16:15 Coffee break		
16:45	Relationship between proxies of nitrogen use efficiency for dairy cows in early lactation Y. Chen, C. Grelet, S. Vanderick and N. Gengler	592
17:00	Influence of inbreeding on milk production and fertility traits in Swiss Holstein cows A. Burren, M. Wyss, T. Neuenschwander and H. Joerg	592
17:15	Elevated vaginal and reticular temperature, and heart rate indicate early heat stress in dairy cows S. Ammer, A. Haase, S. Hoffmann, A. Pontiggia, A. Münger, R.M. Bruckmaier, M. Holinger, F. Dohme-Meier and N.M. Keil	593
17:30	Positive health-related effects of offering veal calves warm water from 1 to 3 months of age T. Jarltoft and M. Vestergaard	593
17:45	Efficiency of an essential oil-based mixture to cure clinical mastitis in dairy cows M. Guiadeur, N. Ballot, D. Bellenot, V. Hardit, P. Sulpice, L. Jouet, A. Fauriat and V. David	594
Poster Session 71		Book of Abstracts page
71.12	Economic value of milkability in Czech Holstein Z. Krupová, M. Wolfová, E. Krupa, E. Kašná and L. Zavadilová	594
71.13	Ecobreed – the economic value of a cow as selection criterion S.H.S.I. Schlebusch	595
71.14	NIRS potential for the prediction of feed efficiency in organic grazing dairy cows S. Ampuero Kragten, T. Haak, K.-H. Südekum and F. Schori	595
71.15	Better lactation start in dairy cattle with a protected standardised grape extract supplementation P. Engler, P. Roussel, L.S. Druhet, P. Caillis, M. Prezelin, J.M. Lamy and A. Benarbia	596
71.16	Consequences of hyperketolactia in early lactation dairy cows Z.M. Kowalski, M. Sabatowicz, R.J. Van Saun, W. Jagusiak, W. Młoczek and M. Spanghero	596

71.17	KetoMIR as a new indicator trait for subclinical ketosis and its use in herd management <i>A. Köck, L. Dale, A. Werner, M. Mayerhofer, F.J. Auer and C. Egger-Danner</i>	597
71.18	How to manage dairy cattle indoor-feeding period with insufficient grass silage stocks? <i>A. Palmio, S. Kajava and A. Sairanen</i>	597
71.19	Breeder's preferences in the choice of AI bulls at herd level <i>J. Braun, S. Gfeller, S. Buri, F. Schmitz-Hsu, S. Wegmann, H. Signer-Hasler and C. Flury</i>	598
71.20	Inbreeding rate in the conservative population of Red Polish cattle <i>P. Topolski and E. Sosin</i>	598
71.21	Relationship between cows' activity and the level of inbreeding <i>P. Topolski, K. Zukowski and A. Zarnecki</i>	599
71.22	A retrospective evaluation of production performance of Butana cattle kept in researech stations <i>E.A.M. Omer, S. Addo, M.-K.A. Ahmed and D. Hinrichs</i>	599
71.23	Feeding concentrated colostrum ensures sufficient uptake of IgG in newborn Holstein calves <i>T. Jarltoft, C.B. Jessen, M.B. Samarasinghe and M. Vestergaard</i>	600
71.24	Comparison of performances of 7 models to predict enteric methane emissions usable for dairies <i>S. Mendowski, V. Chatellier, M. Tournat, O. Garcia and G. Chesneau</i>	600
71.25	Experiences with GPS sensors for dairy / suckler cows on Slovenian Alpine pastures <i>M. Klopčič, M. Hahn, J. Steinfeld and K. Klopčič</i>	601
71.26	Land use conflict between farmers and herdsman – implication for rural development <i>M.A. Oke</i>	601
71.27	The incidence and management of bovine cystic ovarian disease in dairy herds across Atlantic Canada <i>S. Morgan, S. Dukeshire and D. Barrett</i>	602

## Session 72. Methods and technologies for research and smart nutrition management in dairy and beef cattle

Room: Wisshorn

Chair: Baumont

Session type: Project session / SMARTCOW

	<b>Theatre Session 72</b>	<b>Book of Abstracts page</b>
14:30	SmartCow: integrating research infrastructures to support innovation in European cattle breeding <i>R. Baumont, M. O'Donovan, R. Dewhurst, P. Lund, B. Kuhla, R. Carelli, C. Reynolds, C. Martin and I. Veissier</i>	602
14:45	<b>invited</b> Using N more efficiently in cattle production systems – challenges and opportunities <i>C. Reynolds, Z. Barker, L. Crompton, P. Lund, J. Dijkstra, R. Dewhurst, P. Nozière, G. Cantalapiedra-Hijar and R. Baumont</i>	603
15:15	Prediction of between-animal variation in N use efficiency in dairy cows from isotopic N signatures <i>M. Correa-Luna, M. Johansen, P. Nozière, A.R. Bayat, L.A. Crompton, C.K. Reynolds, E. Froidmont, N. Edouard, P. Lund, C. Martin and G. Cantalapiedra-Hijar</i>	603
15:30	Digestibility and intake become repeatable traits in young bulls with at least 7 days of measurement <i>R. Bellagi, R. Baumont, L. Salis, S. Alcouffe, G. Cantalapiedra-Hijar and P. Nozière</i>	604



15:45	Milk mid-infrared spectra to estimate rumen fermentation parameters <i>A. Vanlierde, F. Dehareng, S. Herremans, K. Nichols, B. Khula, M. Eugène and C. Martin</i>	604
16:00	Methane emission, microbiome and immune function in dairy cattle <i>P. Niu, U. Gimsa, P. Pope, B. Kuhla and A. Schwarm</i>	605
16:15	Coffee break	
16:45	Detection of complex animal traits from data provided by activity sensors <i>I. Veissier, M.M. Mialon, R. Lardy, B. Meunier, M. Bouchon, L. Munskgaard, M. Terre, A. Valldecabres, K. Van Reenen, I. Van Dixhoorn and R. De Mol</i>	605
17:00	Can a virtual cow model help precision feeding in dairy cattle? <i>C. Gaillard and O. Martin</i>	606
17:15	Prediction of total feed intake of dairy cows using a portable near-infrared microspectrometer <i>D. Perez-Marin, I. Torres, L. Munskgaard and F. Maroto-Molina</i>	606
17:30	Evaluation of strategies for feed efficiency phenotyping in the Norwegian red dairy cattle <i>A. Ehsani, H. Storlien, J. Jenko, H. Melbø Tajet, I. Pocnić, J. Obšteter and G. Gorjanc</i>	607
17:45	Which methodology to study the effect of farming practices on cheese sensory properties? <i>E. Manzocchi, I. Verdier-Metz, C. Delbès, C. Bord, M. Bouchon, J. Berard, M. Coppa and B. Martin</i>	607

## Poster Session 72

## Book of Abstracts page

72.12	Mapping of cattle infrastructures, equipment and sample banks within the SmartCow consortium <i>M. O'Donovan, E. Kennedy, P. Ryan and P. Madrange</i>	608
72.13	Encouraging research complementarities through mapping of cattle research infrastructures in Europe <i>P. Madrange, E. Kennedy, P. Ryan, C. Melis, R. Baumont and M. O'Donovan</i>	608
72.14	Towards common standards, guidelines for measurement and data management in cattle research <i>B. Kuhla, S.D. Mesgaran, A. Aubin, C. Hurtaud and R. Baumont</i>	609
72.15	Transnational access to leading cattle research facilities within the EU SmartCow project <i>R.J. Dewhurst, P. Lund and R. Baumont</i>	609
72.16	Titanium dioxide as digestibility marker – between and within cow variation in faecal concentrations <i>G. Giagnoni, P. Lund, M.R. Weisbjerg and M. Johansen</i>	610
72.17	Influence of measurement method of methane on the performances of faecal NIRS models in cattle <i>D. Andueza, F. Picard, Y. Rochette, J. Pourrat, A. Vanlierde, F. Dehareng, D. Morgavi and C. Martin</i>	610
72.18	Can we identify low CH <sub>4</sub> emitter dairy cattle by their milk carbon isotopic signatures? <i>G. Cantalapiedra-Hijar, M. Correa-Luna, C. Chantelauze, Y. Rochette, P. Pourazad, M. Bouchon and C. Martin</i>	611
72.19	Investigating components of cow breath with potential for rumen diagnostics <i>R.J. Dewhurst</i>	611
72.20	Effects of diet protein concentration on digestion and N balance of dairy cows over 3 lactations <i>L. Crompton, D. Humphries, A. Jones, A. Thomson, J. Moorby, D. Roberts, T. Misselbrook, A. Del Prado and C. Reynolds</i>	612
72.21	The effect of a molasses based liquid feed on fibre digestion, nitrogen utilisation and rumen pH <i>G.M. Chapman, P. Holder, C.K. Reynolds and D.J. Humphries</i>	612
72.22	Impact of physically effective fibre on chewing, nitrogen balance, and performance of lactating cow <i>R. Heering, N. Selje-Aßmann, R. Baumont and U. Dickhoefer</i>	613

72.23	Validation of eating duration assessment from automatic feeder systems <i>E. Ternman, M. Terré, M. Bouchon, B. Meunier, L. Munksgaard and I. Veissier</i>	613
72.24	Definition of indicators of activity from data provided by wearable sensors in dairy cattle <i>I.D.E. Van Dixhoorn, R.M. De Mol, J.T.N. Van Der Werf, C.G. Van Reenen, L. Munksgaard, M. Terre, I. Veissier, M.M. Mialon, B. Meunier and M. Bouchon</i>	614
72.25	Evaluation of strategies for summarizing acceleration data to monitor calving in rangeland systems <i>A. Bugueiro Domingo, J. Navarro García, I. Gómez Maqueda, M. Gaborit, F. Launay, C.C. Pérez Marín, D.C. Pérez Marín and F. Maroto Molina</i>	614
72.26	Daily activity budget of beef cows under occasional feed restriction periods throughout lactation <i>K. Orquera, M. Blanco, J. Ferrer and I. Casasús</i>	615
72.27	Evaluation of the ingestive behaviour of the dairy cow under two systems of rotation with slope <i>E. Castro Muñoz, G.F. Da Silva Neto, A.L.H. Andriamandroso, L. Ron, C. Montufar, F. Lebeau and J. Bindelle</i>	615
72.28	Effects of phytogenic feed additives on performance and enteric methane emissions in dairy cattle <i>P. Pourazad, C. Martin, M. Bouchon, Y. Rochette, T. Aumiller, T. Aubert and K. Wendler</i>	616
72.29	Chewing activity and rumen pH of cows adapting to a high grain diet with phytogenic supplementation <i>R. Rivera-Chacon, S. Ricci, N. Reisinger, Q. Zebeli and E. Castillo-Lopez</i>	616
72.30	Effect of origin and quantity of starch on <i>in vitro</i> digestibility and acidogenicity of cow diets <i>P. Micek, Z.M. Kowalski, T. Szufnara and T. Gajówka</i>	617
72.31	Long-term effect of feeding a potentiated ZnO source on milk profile and serum Zn in dairy cows <i>M. Terré, D. Cardoso, D. Sabrià, N. Prat, E. Paran and A. Piñon</i>	617
72.32	Effect of type of silage and concentrate on eating behaviour and relation to enteric methane <i>G. Giagnoni, M. Johansen, P. Lund and M.R. Weisbjerg</i>	618

## Session 73. Next generation in animal nutritional science (Young Scientists Session)

Room: Studio

Chair: Kreuzer-Redmer / Tretola

Session type: Early-career scientist's session

<b>Theatre Session 73</b>		<b>Book of Abstracts page</b>
14:30	Dietary tannins affect differently cow milk fatty acid profile according to grazing season <i>R. Menci, A. Natalello, M. Caccamo, G. Luciano, B. Valenti, A. Priolo and M. Coppa</i>	618
14:35	Effect of nanocurcumin and fish oil as natural anti-inflammatory compounds on calves' performance <i>S. Kamel Oroumieh, L. Van Meulebroek, R. Valizadeh, L. Vanhaecke and A.A. Naserian</i>	619
14:40	Effect of the administration of a high sugar diet on beef cattle growth performance and rumen health <i>S. Grossi, L. Rossi and C.A. Sgoifo Rossi</i>	619
14:45	Feed restriction affects protein and microRNA levels in dairy cows' milk <i>A. Leduc, S. Le Guillou, L. Bianchi, M. Gelé, L. Herve, P. Martin, J. Pires, Y. Faulconnier, C. Leroux, M. Boutinaud and F. Le Provost</i>	620
14:50	Co-expression of miRNAs in rumen fluid and tissue in cattle transitioned to high-grain diet <i>S. Ricci, R.M. Petri, C. Pacifico, A. Sener-Aydemir, R. Rivera Chacon, E. Castillo Lopez, N. Reisinger, Q. Zebeli and S. Kreuzer-Redmer</i>	620
14:55	Evaluation of miRNAs in the plasma and leucocytes of cattle fed forage or high-grain diets <i>O.E. Ojo, C. Pacifico, S. Johanns, S. Ricci, R. Rivera-Chácon, A. Sener-Aydemir, R.M. Petri, E. Castillo-Lopez, N. Reisinger, Q. Zebeli and S. Kreuzer-Redmer</i>	621

15:00	Effect of <i>Ceratonia siliqua</i> on coccidian faecal egg count and dry matter of faeces in light lambs <i>J. Pelegrin-Valls, B. Serrano-Pérez, D. Villalba, E. Molina, B. Aquilué and A. Álvarez-Rodríguez</i>	621
15:05	Plasmatic and ruminal metabolomes of lambs divergently selected on residual feed intake <i>F. Toutitou, A. Meynadier, N. Marty-Gasset, N. Vialaneix, G. Lefort and F. Tortereau</i>	622
15:10	Effect of inclusion of concentrates and exogenous butyrate on rumen wall development in sheep <i>S. Świerk, M. Przybyło, R. Miltko, J. Flaga, E. Molik and P. Górka</i>	622
15:15	<i>Tetraselmis</i> sp. incorporation in the post-weaning piglet diets: effects on productive performance <i>A.A.M. Chaves, C.F. Martins, D.M. Ribeiro, D.F. Carvalho, R.J.B. Bessa, A.M. Almeida and J.P.B. Freire</i>	623
15:20	Influence of fish oil in gestation and lactation diets on faecal microbiota of lactating piglets <i>E. Llauradó-Calero, E. Climent, E. Chenoll, I. Badiola, A.M.P. De Rozas, R. Lizardo, D. Torrallardona, E. Esteve-García and N. Tous</i>	623
15:25	An alternative <i>in vitro</i> model to investigate immunomodulatory functions of feed additives in chicken <i>F. Larsberg, M. Spreichert, D. Hesse, G.A. Brockmann and S. Kreuzer-Redmer</i>	624
15:30	The effect of linseed oil on <i>in vitro</i> fermentation kinetics using horse caecal fluid as inoculum <i>A. Waliczek, A. Kidane and R.B. Jensen</i>	624
15:35	Relationship between CH <sub>4</sub> measured with sniffer method and dry matter intake in dairy cows <i>S. Mohamad Salleh, R. Danielsson, C. Kronqvist and J. Karlsson</i>	625
15:40	A new integrative mathematic approach to study metabolic trajectories of grazing dairy cows <i>E. Jorge-Smeding, M. Carriquiry, H. Naya, A. Mendoza and A.L. Astessiano</i>	625
15:45	Skills and knowledge expected by MSc students and professionals in animal sciences <i>C. Schreck, Y. Le Cozler, J. Flament, L. Montagne and S.P. Parois</i>	626
15:50	Perspectives for the animal nutrition higher education, employment, and research <b>invited</b> <i>A. Baldi</i>	626

## Session 74. Omics in animal nutrition and physiology (the European joint doctorate program Molecular Animal Nutrition “MANNA”)

Room: Sertig

Chair: Eckersall / Sauerwein

Session type: Project session

	<b>Theatre Session 74</b>	<b>Book of Abstracts page</b>
14:30	Designing a metabolomics approach for identification of novel biomarkers in animal science <i>R. Birkler, L. Morgan, S. Shaham Niv, T. Wachsman and E. Gazit</i>	627
14:45	The C3 gene as a potential mediator of metabolic status and reproductive development in bull calves <i>K. Keogh, S. Coen, P. Lonergan, S. Fair and D.A. Kenny</i>	627
15:00	NMR spectroscopy reveals seminal plasma metabolites as sperm quality/functionality biomarkers in pig <i>Y. Mateo-Otero, P. Fernández-López, J. Ribas-Maynou, J. Roca, J. Miró, M. Yeste and I. Barranco</i>	628
15:15	Prediction of bull fertility based on the sperm methylome <i>V. Costes, A. Chaulot-Talmon, E. Sellem, J.P. Perrier, A. Aubert, L. Jouneau, C. Pontlevoy, C. Hozé, S. Fritz, M. Boussaha, C. Le Danvic, M.P. Sanchez, D. Boichard, L. Schibler, H. Jammes, F. Jaffrézic and H. Kiefer</i>	628
15:30	Transcriptomic profiling and functional assessment of omega-3 fatty acids in porcine enterocytes <i>T.S. Sundaram, C. Giromini, R. Rebucci, A. Baldi, M. Bhide and J. Pisl</i>	629

15:45	Preliminary application of dynamic proteomics to study broiler chicken growth and health status <i>J. Peinado-Izaguerra, M. McLaughlin, D. McKeegan, F. Riva, M. Bain, M. Bhide and T. Preston</i>	629
16:00	Machine learning tracking immune-related proteins in serum of periparturient dairy cows <i>A. Veshkini, M. Bonnet, H. Hammon, L. Vogel, A. Tröscher, M. Delosière, A. Delavaud, D. Viala, H. Sauerwein and F. Cecilian</i>	630
16:15 Coffee break		
16:45	Intramammary infection with non-aureus staphylococci modifies water buffalo milk lipidome <i>F. Cecilian, M. Audano, M.F. Addis, C. Lecchi, M.H. Ghaffari, M. Albertini, F. Tangorra, E. De Carlo, D. Vecchio, G. Cappelli, D. Di Vuolo, R. Piccinini, D. Caruso, N. Mitro and V. Bronzo</i>	630
17:00	Altered serum proteomes in newly weaned piglets born from the sows receiving a low ratio of $\omega 6:\omega 3$ <i>T.X. Nguyen, A. Gelemanović, S. McGill, S. Weidt, M. Piñero, A. Agazzi, P.D. Eckersall, R. Burchmore and G. Savoini</i>	631
17:15	Muscle proteomics of pre-weaned piglets from sows fed with extreme $\omega-6/\omega-3$ fatty acid ratio diets <i>Y.J.Y. Manaig, G. Savoini, A. Agazzi, S. Panseri, J.M. Folch and A. Sanchez</i>	631
17:30	Impact of the ratio of $\omega 6:\omega 3$ fatty acids in the maternal diet on milk pig exosome proteome profiles <i>R. Furioso Ferreira, T. Bles, F. Shakeri, A. Bunes, M. Sylvester, A. Agazzi, G. Savoini, V. Mrljak and H. Sauerwein</i>	632
17:45	Milk-derived exosomes modulate porcine monocyte immune function <i>G. Ávila, D. De Leonardis, J. Filipe, R. Furioso Ferreira, A. Agazzi, M. Comi, H. Sauerwein, C. Lecchi and F. Cecilian</i>	632
18:00	<i>In vitro</i> immunomodulatory effects of PUFA on porcine monocytes <i>G. Ávila, S. Di Mauro, J. Filipe, D. De Leonardis, C. Gini, A. Agazzi, M. Comi, C. Lecchi and F. Cecilian</i>	633
18:15	The role of citrus and cucumber diets in chicken gut microbiota profile using 16s rRNA sequencing <i>F. Riva, D. McGuinness, D. McKeegan, J. Peinado-Izaguerra, G. Bruggeman, D. Hermans, M. McLaughlin, D. Eckersall and M. Bain</i>	633

#### Poster Session 74

#### Book of Abstracts page

74.15	Impact of NGS data trimming on differential gene expression analysis <i>M. Kołomański, M. Frąszczak and M. Mielczarek</i>	634
74.16	Effect of enhanced early life nutrition on the anterior pituitary transcriptome of heifer calves <i>K. Keogh, A.K. Kelly and D.A. Kenny</i>	634
74.17	Major urinary protein knockout leads to lipid accumulation in young male but not in female mice <i>S. Greve, G.A. Kuhn and K. Giller</i>	635
74.18	Differentiation of intramuscular preadipocytes in low marbling beef cattle <i>B. Soret, J.A. Mendizabal, A. Arana and L. Alfonso</i>	635
74.19	Impacts of body condition score on reproductive performance and overall productivity of beef cows <i>R.F. Cooke and F.N.T. Cooke</i>	636
74.20	Idiopathic male subfertility in a Holstein Friesian AI bull: a case study <i>E. O'Callaghan, M. Stivnicka, C. O'Meara, B. Eivers, D.A. Kenny, S. Fair and P. Lonergan</i>	636
74.21	The effect of pasteurization in the expression of bovine milk microRNA <i>L. Abou El Qassim and L.J. Royo Martín</i>	637

# Study commissions

## Commission on Animal Genetics



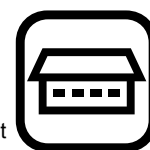
Erling Strandberg	President	Swedish University of Agricultural Sciences, Sweden	erling.strandberg@slu.se
Marcin Pszczola	Vice-President	Poznan University of Life Sciences, Poland	marcin.pszczola@gmail.com
Filippo Miglior	Vice-President	University of Guelph, Canada	fmglior@uoguelph.ca
Morten Kargo	Vice-President	Aarhus University, Denmark	morten.kargo@qgg.au.dk
Alessio Cecchinato	Secretary	Padova University, Italy	alessio.cecchinato@unipd.it
Christa Egger-Danner	Industry rep.	Zuchtdata, Austria	egger-danner@zuchtdata.at
Xiao Wang	Young Club	Technical University of Denmark, Denmark	xiwa@dtu.dk
Ewa Sell-Kubiak	Young Club	Poznan University of Life Sciences, Poland	ewa.sell-kubiak@puls.edu.pl

## Commission on Animal Nutrition



Luciano Pinotti	President	University of Milan, Italy	luciano.pinotti@unimi.it
Sam de Campeneere	Vice-President	ILVO, Belgium	sam.decampeneere@ilvo.vlaanderen.be
Maria José Ranilla García	Secretary	Universidad de León, Spain	mjrang@unileon.es
Roselinde Goselink	Secretary	Wageningen Livestock Research, The Netherlands	roselinde.goselink@wur.nl
Latifa Abdennebi-Najar	Secretary	IDELE, France	latifa.najar@idele.fr
Daniele Bonvicini	Industry Rep	Prosol S.p.a, Italy	d.bonvicini@prosol-spa.it
Javier Alvarez Rodriguez	Industry Rep	University of Lleida, Spain	javier.alvarez@udl.cat
Susanne Kreuzer-Redmer	Young Club	Vetmed Vienna, Austria	susanne.kreuzer-redmer@vetmeduni.ac.at

## Commission on Health and Welfare



Stefano Messori	President	STAR-IDAZ International Research Consortium, France	stefano.messori@yahoo.it
Gürbüz Das	Vice-President	Leibniz Institute for Farm Animal Biology, Germany	gdas@fhn-dummerstorf.de
Evangelia N. Sossidou	Vice-President	Hellenic Agricultural Organization, Greece	sossidou.arig@nagref.gr
Stefanie Ammer	Secretary	Goettingen University, Germany	stefanie.ammer@uni-goettingen.de
Giulietta Minozzi	Secretary	University of Milan, Italy	giulietta.minozzi@unimi.it
Olivier Espeisse	Industry Rep	Ceva Santé Animale, France	olivier.espeisse@ceva.com
Delphine Gardan	Industry Rep	Groupe CCPA, France	dgardan-salmon@ccpa.com
Mariana Dantas de Brito Almeida	Young Club	University of Tras-os-Montes and Alto Douro, Portugal	mdantas@utad.pt

## Commission on Animal Physiology



David Kenny	President	Teagasc, Ireland	David.Kenny@teagasc.ie
Isabelle Louveau	Vice president	INRAE, France	isabelle.louveau@inrae.fr
Yuri Montanholi	Secretary	Lakeland College, Canada	yuri.montanholi@lakelandcollege.ca
Arnulf Troescher	Industry rep.	BASF, Germany	arnulf.troescher@basf.com



## Commission on Livestock Farming Systems

Michael Lee	President	Harper Adams University, United Kingdom	MRFLee@harper-adams.ac.uk
Monika Zehetmeier	Vice President	Institute Agricultural Economics and Farm Management, Germany	monika.zehetmeier@lfl.bayern.de
Tommy Boland	Secretary	University College Dublin, Ireland	tommy.boland@ucd.ie
Ioanna Pouloupoulou	Secretary	Free University of Bozen, Italy	ioanna.Pouloupoulou@unibz.it
Vincent Thenard	Secretary	INRAE, France	vincent.thenard@inrae.fr
Alfredo J. Escribano	Industry rep.	Orffa / Independent researcher and Consultant, Spain	ajescc@gmail.com
Tiago T. da Silva Siqueira	Young Club	INRAE, France	tiago.teixeira.dasilva.siqueira@gmail.com
Maria-Anastasia Karatzia	Young Club	Hellenic Agricultural Organization, Greece	karatzia@rias.gr



## Commission on Cattle Production

Jean François Hoquette	President	INRAE, France	jean-francois.hocquette@inrae.fr
Sven Köning	Vice-President	University of Kassel, Germany	sven.koenig@uni-kassel.de
Andreas Foskolos	Vice-President	University of Thessaly, Greece	andreasfosk@hotmail.com
Massimo De Marchi	Secretary	Padova University, Italy	massimo.demarchi@unipd.it
Ray Keatinge	Secretary	Agriculture & Horticulture Development Board, UK	ray.keatinge@ahdb.org.uk
Karsten Maier	Industry rep.	UECBV, Belgium	info@uecbv.eu
Cătălin Necula	Industry rep.	Alltech, Ireland	cneacula@alltech.com
Barbara Kosinska-Selvi	Young Club	Wroclaw University of Environmental and Life Sciences, Poland	barbara.kosinska@upwr.edu.pl



## Commission on Sheep and Goat Production

Vasco Augusto Pilão Cadavez	President	CIMO – Mountain Research Centre, Portugal	vcadavez@ipb.pt
Lorenzo E Hernandez Castellano	Vice-President	Universidad de Las Palmas de Gran Canaria, Spain	lorenzo.hernandez@ulpgc.es
Ouranios Tzamaloukas	Secretary	Cyprus University of Technology, Cyprus	ouranios.tzamaloukas@cut.ac.cy
Georgia Hadjipavlou	Secretary	Agricultural Research Institute, Cyprus	georgiah@ari.gov.cy
Neil Keane	Industry rep.	Alltech, Ireland	nkeane@alltech.com
Christos Dadousis	Young Club	University of Parma, Italy	christos.dadousis@unipr.it



## Commission on Pig Production

Sam Millet	President	ILVO, Belgium	sam.millet@ilvo.vlaanderen.be
Paolo Trevisi	Vice president	Bologna University, Italy	paolo.trevisi@unibo.it
Giuseppe Bee	Vice president	Agroscope Liebefeld-Posieux ALP, Switzerland	giuseppe.bee@alp.admin.ch
Katja Nilsson	Secretary	Swedish University of Agricultural Science, Sweden	katja.nilsson@slu.se
Egbert Knol	Industry rep.	Topigs Norsvin, The Netherlands	egbert.knol@topignorsvin.com
Stafford Vigors	Young Club	University College Dublin, Ireland	staffordvigors1@ucd.ie

## Commission on Horse Production



Rhys Evans	President	Norwegian University College of Green Development, Norway	rhys@hgut.no
Kathrin F. Stock	Vice president	IT Solutions for Animal Production (vit), Germany	friederike.katharina.stock@vit.de
Klemen Potočnik	Vice president	University of Ljubljana, Slovenia	klemen.potocnik@bf.uni-lj.si
Roberto Mantovani	Vice president	University of Padua- DAFNAE, Italy	roberto.mantovani@unipd.it
Isabel Cervantes Navarro	Secretary	Complutense University of Madrid, Spain	icervantes@vet.ucm.es
Pasquale De Palo	Secretary	University of Bari, Italy	pasquale.depalo@uniba.it
Melissa Cox	Industry rep.	Generatio GmbH – Center for Animal Genetics, Germany	melissa.cox@centerforanimalgenetics.de
Juliette Auclair-Ranzaud	Young Club	Institut français du cheval et de l'équitation, France	juliette.auclair-ronzaud@ifce.fr
Kirsty Tan	Young Club	Christian-Albrechts-Universität zu Kiel, Germany	kirsty.tan89@gmail.com

## Commission on Insects



Teun Veldkamp	President	Wageningen Livestock Research, The Netherlands	teun.veldkamp@wur.nl
Laura Gasco	Vice president	University of Turin, Italy	laura.gasco@unito.it
Christoph Sandrock	Secretary	Research Institute of Organic Agriculture FiBL, Switzerland	christoph.sandrock@fibl.org
Marian Peters	Industry rep.	IIC (International Insect Centre), The Netherlands	marianpeters@ngn.co.nl
Daniel Murta	Industry rep.	Ingredient Odyssey – EntoGreen, Portugal	daniel.murta@entogreen.com
Thomas Farrugia	Industry rep.	Beta Bugs, UK	thomas@betabugs.uk
Matteo Ottoboni	Young Club	University of Milan, Italy	matteo.ottoboni@unimi.it
Marwa Shumo	Young Club	University of Bonn, Germany	mshummo@hotmail.com

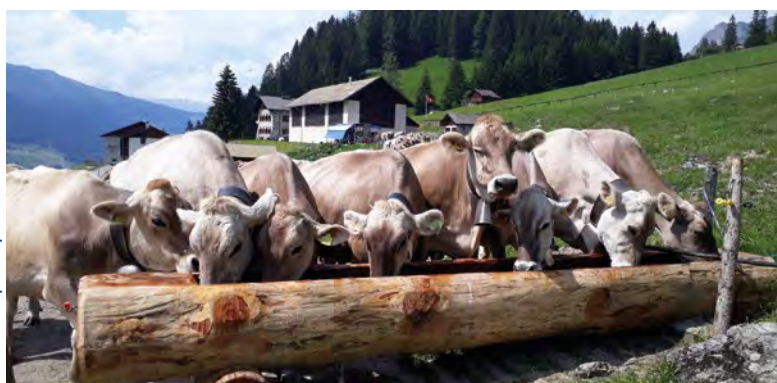
## Commission on Precision Livestock Farming



Matti Pastell	President	Natural Resources Institute Finland (Luke), Finland	matti.pastell@luke.fi
Jarissa Maselyne	Vice president	ILVO, Belgium	jarissa.maselyne@ilvo.vlaanderen.be
Francisco Maroto Molina	Vice president	University of Cordoba, Spain	g02mamof@uco.es
Claire Morgan-Davies	Vice president	Scotland's Rural College (SRUC), UK	claire.morgan-davies@sruc.ac.uk
Ines Adriaens	Vice president	KU Leuven, Belgium	ines.adriaens@kuleuven.be
Jean-Marc Gautier	Vice president	IDELE, France	jean-marc.gautier@idele.fr
Shelly Druyan	Secretary	ARO, The Volcani Center, Israel	shelly.druyan@mail.huji.ac.il
Radovan Kasarda	Secretary	Slovak University of Agriculture in Nitra, Slovakia	radovan.kasarda@uniag.sk
Hiemke Knijn	Industry rep.	CRV, The Netherlands	hiemke.knijjn@crv4all.com

# Technical tours – Friday 3 September

source: Alp Parpan



## Tour 1

Cows, cheese, goats and sheep in a great tourist region

### Destinations:

Visits to an alpine cheese dairy, a dairy goat and sheep farm, the educational farm Plantahof and Switzerland's largest cheese dairy.

### Schedule:

07:30 Bus departs from Davos in front of Conference Centre  
08:30 Sightseeing: historical railway in Wiesen  
10:00 Arrival at 'Alp Parpan' (cows, alpine cheese dairy); lunch in Restaurant 'Stätzerhorn'  
13:00 Arrival at organic goat and dairy sheep farm 'Waldhaus' in Chur  
14:30 Arrival at educational and experimental farm 'Plantahof' in Landquart; drop off at the train station Landquart possible; In Landquart, there is an option to take the train to Zurich Airport/Zürich Flughafen (approximately 1h45 minutes)  
15:30 Arrival at the cheese dairy 'Emmi'; drop off at the train station Landquart possible  
16:30 Departure to Davos by bus  
17:30 Arrival in Davos



source: Ivt Swissgenetics

## Tour 2

Cattle breeding: 180 sires in Switzerland's largest AI-station, an organic dairy farm and a great research station

### Destinations:

Visits to the Swissgenetics bull breeding station, an organic dairy farm, and the AgroVet Strickhof research station.

### Schedule:

07:30 Bus departs from Davos in front of Conference Centre  
10:00 Visit to Swissgenetics bull breeding station in Mülligen  
11:45 Departure from Swissgenetics  
12:15 Visit to an organic dairy farm; lunch at the farm  
14:00 Departure from the farm  
15:00 Visit to AgroVet Strickhof research station in Lindau  
17:00 Departure from Strickhof  
17:30 Arrival at Zurich Airport From Zurich Airport/Zürich Flughafen, there are frequent departures to Zurich Main Station/Zürich HB (approximately 15 minutes)  
20:00 Arrival in Davos



source: suisag



### Tour 3

#### Pig breeding in Switzerland: unique in the world

##### Destinations:

Visits to a nucleus breeding farm, a finisher farm, SUISAG and the Swiss test-station for pigs.

**Important:** Do not have contact with other pigs for at least 48 h before the tour!

##### Schedule:

- 07:30 Bus departs from Davos in front of Conference Centre
- 09:30 Visit to nucleus breeding farm Schwizer in Walenstadt
- 11:00 Departure from Farm Schwizer
- 11:15 Visit to finisher barn of farm Kurath in Walenstadt
- 11:45 Departure from Farm Kurath
- 13:30 Barbecue and visit to SUISAG and Swiss test-station for pigs in Sempach
- 15:30 Departure from SUISAG
- 16:30 Arrival at train station Wädenswil [Zugsymbol] In Wädenswil, there is an option to take the train to Zurich Main Station/Zürich HB and Zurich Airport/Zürich Flughafen (approximately 40 minutes)
- 20:00 Arrival in Davos



source: Vetsuisse Zürich

### Tour 4

#### Horse tour: housing, training and high-tech equine sports medicine

##### Destinations:

Visits to an innovative boarding stable, a breeder of the indigenous Freiberger breed and the Equine Sports Medicine Unit of the Vetsuisse Faculty in Zurich

##### Schedule:

- 07:30 bus departs from Davos in front of Conference Centre
- 09:30 Arrival at Ponyhof Letzau, Oberriet
- 11:00 Departure from Oberriet
- 12:00 Arrival at Tonis Fribyhof in Jonschwil, lunch
- 14:30 Departure from Jonschwil
- 15:30 Arrival at Vetsuisse Zurich
- 17:15 Departure to Zurich airport or Zurich main station from Station 'Tierspital' by tramway From the station Zurich Vetsuisse/Tierspital, there are frequent departures to Zurich Main Station/Zürich HB and to Zurich Airport/Zürich Flughafen (approximately 25/30 minutes)
- or
- 17:15 Departure to Davos by bus
- 19:30 Arrival in Davos

# Social events

source: Ivt Swissgenetics



## Opening & award ceremony, welcome reception

- Time: Monday August 31, 19.00 – 22.00
- Venue: Davos Congress, 7270 Davos-Platz

On Monday evening, all participants are kindly invited to attend the Opening and Award Ceremony. During the subsequent welcome reception, we would like to give all participants the opportunity to meet friends, old and new, while enjoying Swiss-specialities served in the catering area of the conference centre.



source: Ivt Swissgenetics

## Swiss Evening

- Time: Tuesday August 31, 19.00 – 22.30
- Different locations, see [www.eaap2021.org](http://www.eaap2021.org) and information desk in the conference centre.

Due to the Covid-situation, the Swiss Evening is 'spread out' in three different locations.

The Swiss evening is meant to be a traditional yet informal get-together: you will sample traditional local food (certainly with lots of cheese) and hear traditional music including the alphorn, Swiss Örgeli and maybe even some yodeling.

## Farewell-Dinner

- Time: Thursday September 2, 19.00 – 23.00

The Belle Epoque hotel 'Schatzalp' is the perfect setting for our Farewell Dinner. The charming Belle Epoque ambience takes you back to the turn of the last century. After a scenic ride on the Schatzalp cable car, we enjoy an aperitif whilst admiring the view from the hotel terrace over the Davos mountains. Afterwards, the Berghotel Schatzalp spoils us with a varied menu in the historic rooms.



source: Ivt Swissgenetics

# Accompanying Persons Programme



source: szzy

## Tuesday August 31

Full day tour: 9:00 – 18:00 (lunch included)

### Theme 'VINTAGE TOUR'

Tour through Chur, the oldest city in Switzerland, where people lived 11,000 years ago. You walk from the modern train station through the lively centre into the winding streets of Chur's old town and up to the 800-year-old cathedral. Get to know historical Chur.

In the afternoon, we go on an informative and exclusive wine tour in the Bündner Herrschaft! You can expect information on historical and cultural backgrounds. A visit to vineyards with explanations of vines and winemaking will bring you closer to our centuries-old wine culture.

## Wednesday September 1

Full day tour: 9:00 – 18:00 (lunch included)

### Theme 'ENGADIN VALLEY'

The National Park Centre, designed by the world-famous Grisons architect Valerio Olgiati, impresses with its clear lines and its unusual spatial concept. Our exhibition guides give you special access to the national park and its nature.

In the afternoon, we will visit famous St. Moritz.

# Solutions for sustainable dairy and beef production

10 Breeds – 880 Bulls



Red Holstein

Brown Swiss

Holstein

Swiss Fleckvieh

Original Braunvieh

Simmental

Limousin

Angus

Original Braunvieh Beef

Simmental Beef

Milk



Milk & Meat



Meat



For all breeding objectives



spermvital

Semen doses with twice the lifespan of the conventional



Polled

selexyon

Sexed semen produced at the stud



For robotic application (Robot ready)

optimis

Young bulls with genomic breeding values



Appropriate for pasture



Progeny tested beef bulls



Embryos

For all expertise required: consulting and services in Artificial Insemination



Palpation exercise in Switzerland



Organ theory course in Switzerland

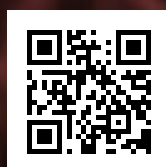


Selection of bulls in the headquarters



AI-Training in Mongolia

Subscribe to our Newsletter



swissgenetics 



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Bundesamt für Landwirtschaft BLW  
Office fédéral de l'agriculture OFAG  
Ufficio federale dell'agricoltura UFAG  
Uffizi federal d'agricultura UFAG

# For a sustainable and innovative agriculture.



Acting today, for tomorrow.



## GLOBAL AGENDA FOR SUSTAINABLE LIVESTOCK

[www.livestockdialogue.org](http://www.livestockdialogue.org)

«The Global Agenda for Sustainable Livestock (GASL) fosters dialogue, evidence sharing and practice and policy change to help all livestock systems be more sustainable in all domains and acknowledges EAAP's livestock-oriented research efforts as important contributions to resilient and sustainable food systems»

### Livestock sustainability domains

<p>Health and animal welfare</p>	<p>Climate and natural resource use</p>
<p>Food and nutrition security</p>	<p>Livelihoods and economic growth</p>



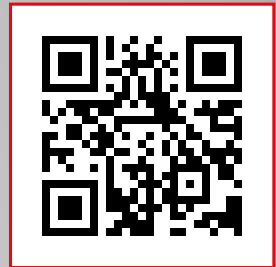
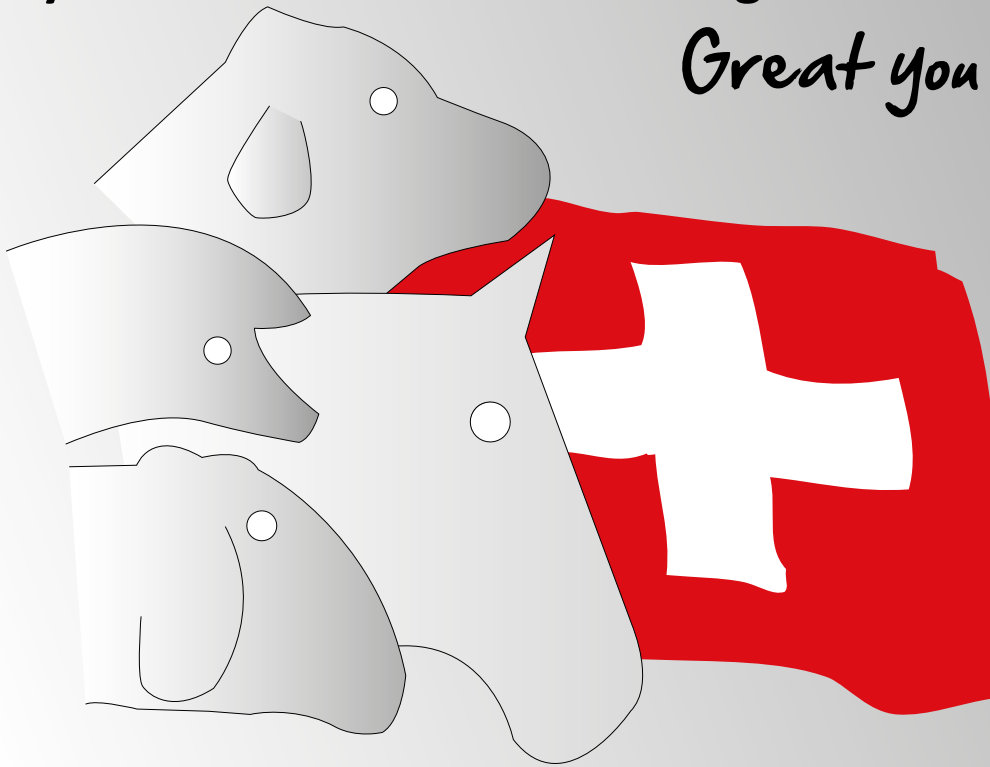
Food and Agriculture Organization of the United Nations

### Main SDGs livestock contributes to

<p>1 NO POVERTY</p>	<p>2 ZERO HUNGER</p>	<p>3 GOOD HEALTH AND WELL-BEING</p>
<p>5 GENDER EQUALITY</p>	<p>8 DECENT WORK AND ECONOMIC GROWTH</p>	<p>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</p>
<p>13 CLIMATE ACTION</p>	<p>15 LIFE ON LAND</p>	<p>17 PARTNERSHIPS FOR THE GOALS</p>

The Swiss Association of Animal Sciences welcomes you to the 72<sup>nd</sup> EAAP-Meeting 2021 in Davos!

*Great you are here!*



[svt-assa.ch](http://svt-assa.ch)

**BROWN  
SWISS**

MORE THAN MILK

**RELIABLE  
QUALITY,  
FOR LIFE**

»I started breeding Brown Swiss because they're the ideal dairy cow, hardy and with great milk yield. I get better prices at the dairy for their milk. They're also lovely cattle to work with, really nice tempered, which makes my life simpler!«

**Heini Stricker,  
St.Gallen/Switzerland**



# melior



## The swiss full-line feed mill

The melior company has specialized in creating and developing high-end animal feed since 1936. Each product is inspired by the values, the history and the traditions that have contributed to build its reputation all over the country

Quality nutrition for animals

**Meliofeed AG**  
3360 Herzogenbuchsee  
Switzerland  
Tel. +41 58 434 15 15  
[melior.ch](http://melior.ch)    

## For the pig genetics of the 21st century



SUISAG is the company for Swiss pork producers and international genetics customers. With our services for breeding, artificial insemination and health, we support pig farmers in their advanced production so that they receive more recognition.

## Joining forces for modern genetics with a future

Working at SUISAG means working for forward-looking farmers – in Switzerland, Germany, Belgium, Luxembourg, Russia, Brazil and other countries. What connects us with you is the “fascination for pigs” – and the desire to produce pork profitably and, at the same time, in a socially responsible manner.

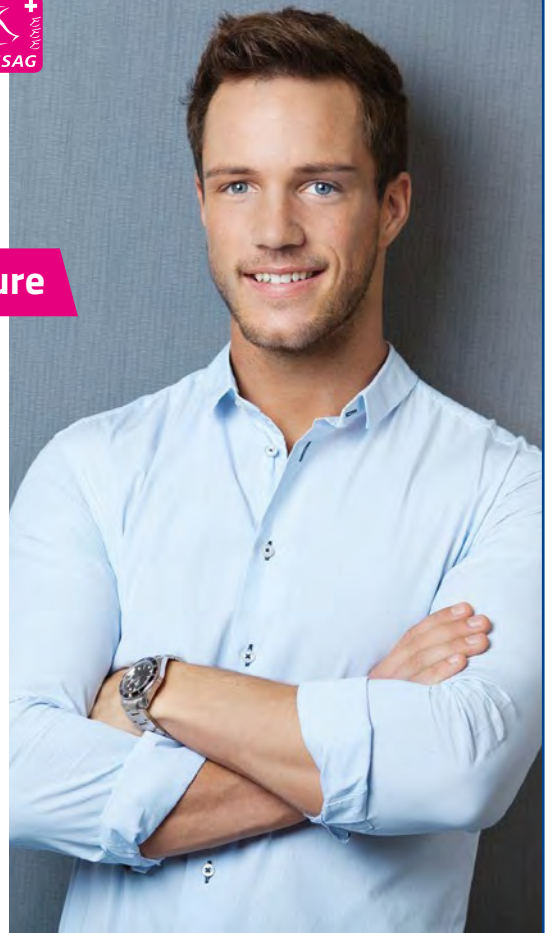
### You ...

- ✓ have studied animal science and are interested in pigs?
- ✓ would like to make an impact and contribute your abilities in a dynamic team for a family-orientated and at the same time multi-national company?

We would love to receive your application – please send it to [bewerbung@suisag.ch](mailto:bewerbung@suisag.ch)

**Would you like to know more?** Contact Ramona Käch, Management Assistant, +41 41 462 65 12, [rka@suisag.ch](mailto:rka@suisag.ch)

**We look forward to meeting you in person.**





Your partner for smarter agrigenomics — solving challenges together

Explore agrigenomic solutions designed to deliver accurate and actionable data when you need it most.

[www.thermofisher.com/agrigenomics](http://www.thermofisher.com/agrigenomics)



**ThermoFisher**  
SCIENTIFIC



## For prosperous stock breeding

Our competence, your opportunity

- Compound feed for all animals
- Milk powder
- Specialities, Mineral feed
- Organic feed
- Horse feed Hypona

UFA feed advisor

**Zollikofen**

058 434 10 00

**Sursee**

058 434 12 00

**Oberbüren**

058 434 13 00

**Puidoux**

058 434 09 00

In your

**LANDI**  
ufa.ch



# FIRE WAS DISCOVERED FOR THIS.



bell.ch

So good. Since 1869.



holstein  
VISION

## PASSING ON THE PASSION

FROM GENERATION TO GENERATION



### FOR THE OPTIMAL MANAGEMENT OF YOUR HERD



BY HOLSTEIN SWITZERLAND

**IDENTIFICATION & REGISTRATION**  
of livestock & companion animals

monitoring & traceability

disease prevention & FOOD SAFETY

data analyses & OPEN DATA PLATFORM

**identitas**

**Animal welfare is part of our DNA.  
This is why we support research.**

**IP-SUISSE**

farmers for generations.

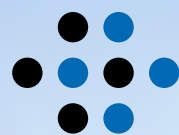
[ipsuisse.ch](http://ipsuisse.ch)

# Qualitas<sup>+</sup>



**IT and  
quantitative  
genetics for  
livestock.**

[www.qualitasag.ch](http://www.qualitasag.ch)



**Suisselab**  
Zollikofen



**We wish you an excellent stay in Davos  
and a successful conference!**

**Suisselab – The Swiss competence centre in milk analytics**

Swiss Cows  
 SWITZERLAND'S  
 LOVE

Photo: Celine Oswald



follow us on



swissherdbook | Schützenstrasse 10 | 3052 Zollikofen | T +41 31 910 61 11 | swissherdbook.ch

# Excellent Swiss milk.

## Our production standard for sustainable Swiss milk

The Sustainable Swiss Milk industry standard: these specifications ensure the high level of the whole Swiss dairy sector with respect to animal welfare, feeding, sustainability and social issues. Grassland Switzerland offers ideal conditions for milk production: in Switzerland animal feed is 90% locally sourced and 100% GMO-free.

Full information on «swissmilk green» on [swissmilkgreen.com](http://swissmilkgreen.com)



### ANIMAL WELFARE

First-class conditions for the animals are an essential component of «swissmilk green».



### SUSTAINABILITY

Proof of ecological performance (ÖLN Programme) is among the basic requirements of «swissmilk green».



### ANIMAL FEED

The quality and origin of animal feed influence the quality of the milk and are important conditions at «swissmilk green».



### SOCIAL

Social security and training are central elements in the additional requirements of «swissmilk green».



swissmilk green

Switzerland. Naturally.

Swiss milk and dairy products.  
 Really great.

swissmilk

GENOSSENSCHAFT

# Vereinigte Milchbauern Mitte-Ost

*Wir vertreten die Interessen der rund 4'300 Mitglieder und erbringen für diese eine breite Palette an Dienst- und Beratungsleistungen. Die Mitglieder der VMMO sind allesamt aktive Milchproduzenten aus 11 Kantonen und produzieren rund ¼ der schweizerischen Milchmenge.*

[www.milchbauern.ch](http://www.milchbauern.ch)

**Vereinigte  
Milchbauern  
Mitte-Ost**



*Milch bewegt!*

Zentralschweizer Milchproduzenten



## From feed to farm to fork to the future

As demand for more sustainably produced animal protein grows, so does the performance of our comprehensive portfolio of efficient, sustainable, high-quality ingredients.

- Carotenoids
- Conjugated Linoleic Acid
- Enzymes
- Glycinates
- Monoglycerides
- Mycotoxin Binders
- Organic Acids
- Vitamins



The science of sustainable feed that succeeds

animalnutrition-europe@basf.com  
animal-nutrition.basf.com

# Best dairy moments for generations to come



www.emmi.com

**FiBL**

## Department of Livestock Sciences

Research Institute of Organic Agriculture FiBL  
Ackerstrasse 113, P.O. Box 219, 5070 Frick, Switzerland  
www.fibl.org

Species-appropriate animal husbandry is a central concern of organic farming. In addition to sufficient space and exercise, this also includes feeding that is appropriate to the species, preventive measures to keep the animals healthy and breeding that meets the aims of organic farming. Researchers of FiBL's Department of Livestock Science strive to significantly improve animal welfare and health as well as resource efficiency.



# Panbonis®


The unique, safe, and natural source of the bioactive form of vitamin D<sub>3</sub>.

herbonis.com

## Naturally essential in modern nutrition.



**Herbonis**

Independent by Nature 



Bern University  
of Applied Sciences

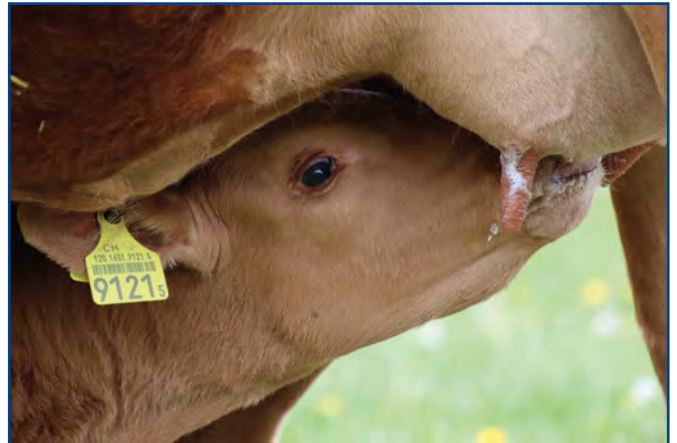
## Take your education a step further

With a BSc or a MSc in Agricultural Sciences



Learn more about  
our expertise

► School of Agricultural, Forest and Food Sciences HAFL



## Mutterkuh Schweiz

The swiss suckler cow  
and beef cattle breeders  
association



MUTTERKUH SCHWEIZ  
VACHE MÈRE SUISSE  
VACCA MADRE SVIZZERA  
BEEF CATTLE SWITZERLAND

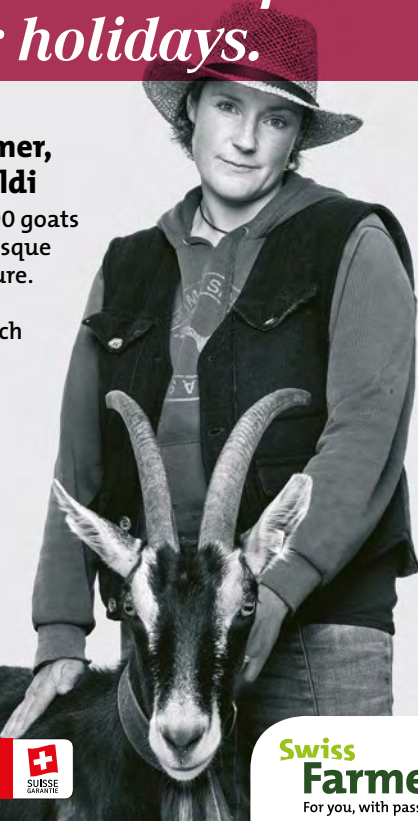
Mutterkuh Schweiz  
Stapferstrasse 2  
P.O. Box  
CH-5201 Brugg  
+41 56 462 33 55  
info@mutterkuh.ch  
beefcattle.ch | beef.ch

*Our goats live  
where others spend  
their holidays.*

**Your farmer,  
Eva Arnoldi**

is rearing 100 goats  
on a picturesque  
alpine pasture.

agriculture.ch



Switzerland, Naturally.



**Swiss  
Farmers**  
For you, with passion.

«Schweizer Bauer» – Die  
unabhängige Zeitung für  
die Landwirtschaft.

Jeden Mittwoch und Samstag top  
aktuelle Nachrichten und Marktpreise.



**Jetzt  
kennenlernen!  
Schnupperabo  
3 Monate  
für Fr. 54.-**

**Schweizer Bauer**

Name, Vorname

Strasse, Nr.

PLZ, Ort

E-Mail, Telefon

**Ja,** ich möchte den  
«Schweizer Bauer»  
kennenlernen  
und abonniere ihn  
für 3 Monate  
(mind 24 Ausgaben)  
für Fr. 54.-

Bestellung an:  
Schweizer Bauer, Aboservice, Industriestrasse 37, 3178 Böisingen,  
Tel. 0844 10 20 30 oder abo@schweizerbauer.ch

100

**Schweizer Bauer**



Welcome  
and a  
successful time  
in Davos

[www.suisseporcs.ch](http://www.suisseporcs.ch)



Schweizerischer  
Ziegenzuchtverband



S Z Z V  
F S E C  
F S A C

[www.szzv.ch](http://www.szzv.ch)



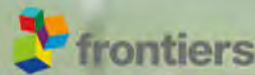
**VHLGenetics®**  
DNA is our core

- ◆ Parentage Verification
- ◆ Genetic Diseases
- ◆ Genome Scan

**VHLGenetics  
Netherlands**

Tel: +31 317 416 402

Email: [info@vhlgenetics.com](mailto:info@vhlgenetics.com)  
[www.vhlgenetics.com](http://www.vhlgenetics.com)



# Frontiers in Animal Science



**Field Chief Editor**  
**Prof. Christine Nicol**  
Royal Veterinary College  
London, United Kingdom

Sections

Animal Nutrition  
Led by **David Harmon**

Animal Welfare & Policy  
Led by **Linda Keeling**

Animal Physiology & Management  
Led by **Geoffrey Dahl**

Precision Livestock Farming  
Led by **Guilherme Rosa**

Product Quality  
Led by **Jose Lorenzo**



**400+**  
Editors



DISCOVERABILITY  
Gold Open  
Access



Visit the journal: [frontiers.in/animalscience](http://frontiers.in/animalscience)





Contact us: [animalscience@frontiersin.org](mailto:animalscience@frontiersin.org)



Follow us: @FrontAnimalSci



**alpinaVERA**

alpinavera is a marketing platform for certified regional specialties from Graubünden, Uri, Glarus and Ticino and co-holder of the «regio.garantie» product seal of quality. The aim is to open up sales markets for partners from the agricultural and food industries. Products that contain at least 80% regional ingredients may bear the «regio.garantie» seal of quality. More than 2'500 regional specialties are certified.

From 2021, the certified regional products will be checked for their environmental impact by the independent indicator «beelong»; labelling is voluntary. The following criteria will be taken into account: (1) greenhouse gas emissions and water footprint, (2) production methods, (3) origin of ingredients and distance between raw materials and processing location and (4) packaging.

Further information: [www.alpinavera.ch](http://www.alpinavera.ch)

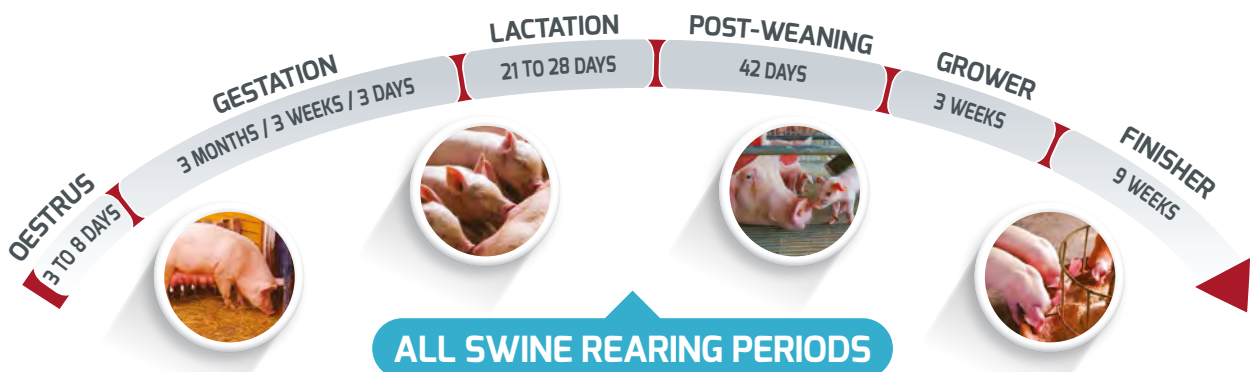
Schweiz. Natürlich.

Products Seal of Quality: **graubündenVIVA** **regio.garantie**

Kanton Graubünden  
Chantun Grischun  
Cantone del Grigioni

# NUTRITIONAL ADDITIVES FOR SWINE PRODUCTION

ADISSEO'S SOLUTIONS ARE DESIGNED TO SUPPORT PRODUCERS IN ALL PRODUCTION STAGES. THE FEED ADDITIVES WE OFFER PLAY A PIVOTAL ROLE IN OPTIMISING PERFORMANCE AND PROFITABILITY.



- FEED DIGESTIBILITY**  
ENZYMES
- ESSENTIAL NUTRIENTS**  
VITAMINS, METHIONINE
- FEED INTEGRITY**  
FEED PRESERVATIVES, FUNCTIONAL ADDITIVES
- ANIMAL VITALITY**  
ORGANIC SELENIUM, PALATANTS, BUTYRATE, MYCOTOXINS BINDERS



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

illumina®

## Accelerating plant and animal genomic breakthroughs.

A history of progress. A future of promise.

Illumina is a leading developer, manufacturer, and marketer of life science tools and integrated systems for large-scale analysis of genetic variation and function. These systems are enabling advances in agriculture that were not even imaginable just a few years ago. With rapid advances in technology taking place, it is mission-critical to offer solutions that are not only innovative, but flexible, and scalable, with industry-leading support and service.

Our customers include a broad range of academic, government, aquaculture producers, seed companies and livestock producers around the globe.

For further details please visit  
<https://emea.illumina.com/areas-of-interest/agrigenomics.html>



METEX NØØVISTAGO

## Tailored for animals, inspired by nature

Major player in the bio-industry sector, METEX NØØVISTAGO produces amino acids by fermentation processes.

We offer science-based tailor made solutions to each customer for sustainable animal farming.

[www.metex-noovistago.com](http://www.metex-noovistago.com)



# Thank you to the EAAP 72<sup>nd</sup> Annual Congress Sponsors and Friends

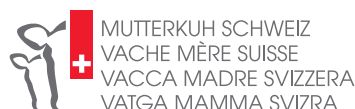
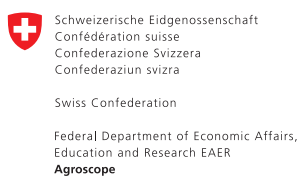
## Silver sponsors



Since 1869.



## Bronze sponsors



## EAAP partners



