

WBFSH General Assembly  
on 14<sup>th</sup> October 2024, in Cascais, Portugal

# Update from the EAAP Horse Commission

– report from EAAP 2024 and news from science

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# Outline

- ❖ **EAAP and EAAP Horse Commission**

- ❖ **EAAP annual meeting 2024**

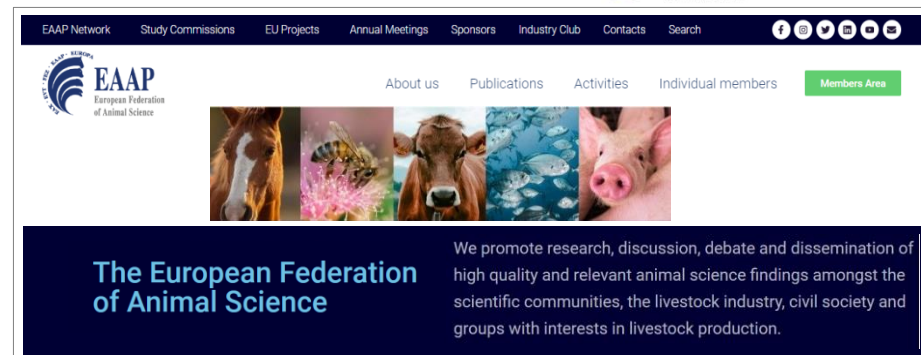
  - news from equine research and beyond

- ❖ **other relevant activities and news from science**

  - implications and prospects for WBFSH,  
horse breeding and the equine sector in general

# EAAP: role and development

- EAAP → EAAP network
  - communication ↑
  - response to structural and societal changes and related challenges
  - outreach and visibility (social media, monthly webinars)
- promotion of activities beyond the scientific EAAP annual meetings
  - project-related service offers, support of knowledge transfer
  - regional conferences, workshops and events on 'new' topics



The screenshot shows the EAAP website homepage. At the top, there is a navigation bar with links for EAAP Network, Study Commissions, EU Projects, Annual Meetings, Sponsors, Industry Club, Contacts, and Search. Below the navigation bar is the EAAP logo and a row of social media icons. The main content area features a banner with the text "The European Federation of Animal Science" and a description: "We promote research, discussion, debate and dissemination of high quality and relevant animal science findings amongst the scientific communities, the livestock industry, civil society and groups with interests in livestock production." The banner also includes a row of images showing various animals: a horse, a butterfly, a cow, a fish, and a pig.



This section displays the EAAP Network partners. It includes the EAAP logo, the Service EAAP logo, the WAP logo, and the asset logo (animal science dissemination team).



EAAP Events

- Athens (Greece), 29-31 January 2024  
Insect Genetic IMProvement, IMPLementation, IMPact
- Milan (Italy), 14-16 May 2024  
1<sup>st</sup> EAAP Companion Animals workshop
- Zurich (Switzerland), 4-6 June 2024  
EAAP workshop: Artificial Intelligence 4 Animal Science

# EAAP: role and development → horses

## Webinar Program (13<sup>th</sup> February 2024)

- 15:00 h Pasquale De Palo, University of Bari (Italy):  
Introduction
- 15:10 h Roberto Mantovani, University of Padova (Italy):  
**Innovative phenotypes and indexes in horse reproduction**
- 15:40 h Michela Ablondi, University of Parma (Italy)  
**Objective movement assessment in horses:  
results from using PLF tools**
- 16:10 h Coffee Break
- 16:20 h Susanne Eriksson, Swedish University of Agricultural Sciences (Sweden)  
**Large scale recording of temperament for breeding purposes**
- 16:50 h Chair & speakers: Wrap-up session
- 17:00 h End of the webinar



# EAAP Horse Study Commission

## \* EAAP HC Board

president:

Rhys Evans, Norway (2023-2026)

vice-president:

Celine Vial, France (2022-2025)

Roberto Mantovani, Italy (2023-2026)

Pasquale De Palo, Italy (2024-2027<sup>+ / ++</sup>)

secretary:

Jackie Tapprest, France (2024-2027<sup>+</sup>)

Emanuela Valle, Italy (2024-2027<sup>++</sup>)

industry representative:

Claire Neveux, UK (2023-2026)

Samy Julliand, France (2024-2027<sup>++</sup>)

EAAP Young Club:

Juliette Auclair, France (2023-2026)

Kirsty Tan, Germany (2023-2026)

changes:

nutrition ↑, genetics ↓

- \* EAAP regulations for board members of Study Commissions:  
in total max. 3 terms, with max. 2 terms in the same position
- + re-elected (+) or newly elected (++) , to be approved by the EAAP Council

# EAAP Horse Study Commission II

<b>EAAP HC Board*</b>	<u>president:</u> Rhys Evans, Norway (2023-2026)
	<u>vice-president:</u> Celine Vial, France (2022-2025) Roberto Mantovani, Italy (2023-2026) Pasquale De Palo, Italy (2024-2027 <sup>+/++</sup> )
	<u>secretary:</u> Jackie Tapprest, France (2024-2027 <sup>+</sup> ) Emanuela Valle, Italy (2024-2027 <sup>++</sup> )
	<u>industry representative:</u> Claire Neveux, UK (2023-2026) Samy Julliand, France (2024-2027 <sup>++</sup> )
	<u>EAAP Young Club:</u> Juliette Auclair, France (2023-2026) Kirsty Tan, Germany (2023-2026)

<b>Working groups of the EAAP HC</b>	Socio-economy WG <ul style="list-style-type: none"> <li>chair: Céline Vial, Rhys Evans</li> </ul>
	Interstallion WG <b>BREEDING TOPICS</b> <ul style="list-style-type: none"> <li>chair: Steven Janssens, Belgium</li> <li>secretary: Kathrin F. Stock, Germany</li> <li>6-8 further members (France, Sweden, Ireland, The Netherlands, Spain, ...)</li> </ul>
	European Workshop for Equine Nutrition (EWEN) WG

\* EAAP regulations for board members of Study Commissions: in total max. 3 terms, with max. 2 terms in the same position

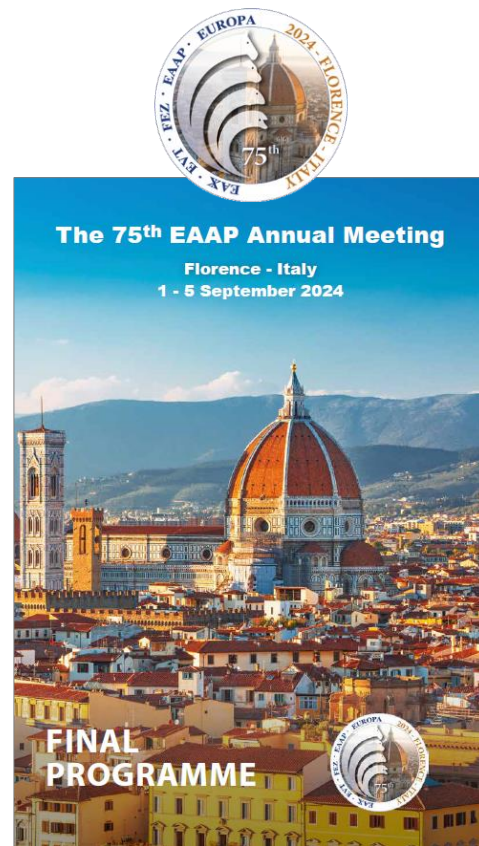
+ re-elected (+) or newly elected (++) , to be approved by the EAAP Council

Feel free to reach out

➤ required contacts  
➤ questions, suggestions (project ideas), ...

# EAAP 2024 Conference: overview

- meeting in the city of Florence, Italy  
(located in Tuscany, strong cultural heritage, 'capital of Renaissance')
- figures and facts
  - about 2,000 participants (60 countries)
  - on-site, live-stream of few sessions only
  - more than 1,800 submitted abstracts  
→ about 1,200 theatre presentations  
plus 600 posters
  - 98 scientific sessions  
(up to 14 sessions in parallel)



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## EAAP 2024 hot topics (≈ EAAP 2023)

- **climate change** (mitigation, adaptation; management and breeding strategies)
- **biodiversity**
- **environmental and societal responsibility** (transformation of livestock production systems, animal health and welfare)
- **digitalization and big data** (chances, challenges, developments, legal framework)

'Global quality: Environment, Animals, Food'  
(lead topic)



# EAAP 2024 Program



Fully packed scientific program (!)

- talks: 4 days à 8h
- posters: 2x 2 days plus 1h-slots

Sunday 1st Sept 8.30 – 12.30	Sunday 1st Sept 14.00 – 18.00
1. Integrating mitigation and adaptation breeding strategies (G, T)	15. Role of bioinformatics applied to livestock data - exploiting structural variation and pangenome-based techniques for livestock (G, T)
2. Breeding scheme optimization: balancing breeding goal(s), genetic progress and diversity (G, T)	16. Genomic selection tools for within- and across- breed management in livestock species (G, T)
3. N, P and E efficient use and circularity in dairy farms – high utilization, minimal losses (C, T)	17. Global quality of animal products in 2024: stakeholders' perceptions, desires, and priorities in a changing world (C, P)
4. Research on young stock care: the journey of calves from gestation onwards (C/H+W, T)	18. Sustainable and smart integration of the dairy and beef sectors in EU (C/CODABE, T)
5. Innovative and emerging feed and forage resources (N, T)	19. Nutritional models development and applications in livestock farming (N, T)
6. Advances in ruminant nutrition, Part 1 (N, T)	23. Management measures to reduce production disease (H+W, D)
7. Emerging practices and tools in horse production (H, BU)	21. Heat stress in pig and poultry production: consequences and strategies to cope with global warming (P, T)
8. Innovative approaches to pig and poultry production (P, EC)	22. Innovation in pig genetics (P/G, B)
9. Alternative production systems and free communications in animal behaviour and welfare (H+W, T)	27. Physiology of resilience and adaptation to climate change (Ph, T)
ONE-DAY SYMPOSIUM	ONE DAY SYMPOSIUM
10. Livestock are more than food; Part 1 (LFS/ATF, C)	24. Livestock are more the food; Part 2 (LFS/ATF, C)
11. Insect nutrition (I, T)	25. Project session ADVAGROMED (I, P)
12. Effectiveness of breeding programs for local breeds in the Mediterranean region and other harsh environments (S+G, WG)	26. Production potential and adaptation of camelid species to extensive, semi-intensive and intensive production systems in arid and semi-arid environments (S+G) (WG)
13. Sensing physiology: Tools towards optimising livestock husbandry (Ph, T)	20. Functional feed additives in poultry nutrition (N/PWG, WG)
14. Integration of PLF and context data to improve decision making (PLF, T)	28. EU-I4-PHE Livestock phenomics, incl. free communications on livestock phenotyping and phenomics (PLF/G, P)

Monday 2nd Sept 8.30 – 12.30
29. Plenary Session. Reassessing our relationship with farmed animals Leroy Award recipient presentation
Poster session I 13:30 - 14:30
Monday 2nd Sept 14.30 – 18.00
30. Relationships between environmental efficiency traits – an interdisciplinary approach (G/N/C, T)
31. Breeding schemes for development of small populations (G/ANRWG, WG)
32. The role of marbling in beef quality – development, importance, measurement, harmonisation (C, T)
33. Mediterranean buffalo farming for sustainable milk and meat production (C, T)
34. Nutrition management to reduce methane emissions and environmental impact, Part 1 (N, T)
35. Advances in non-ruminant nutrition, Part 1 (N, T)
36. Slow-growing meat-type and dual purpose genotypes for conventional and alternative farming systems in the EU (PWG/WPSA-Italian Branch, WG)
37. Rethinking the transition from suckling to weaning to prevent negative consequences of the stress on pig health (P, T)
38. Best-practice in addressing pig welfare on-farm (H+W, I)
39. Building quality into animal products to improve the sustainability of farming systems for the future (LFS, T)
40. Zooarchaeological research lessons for contemporary livestock management, conservation and genetics (S+G/LFS, T)
41. Optimising reproductive physiology of livestock (Ph, I)
42. Digital technologies for management (PLF, C)

Tuesday Sept 3rd 8.30 – 12.30
43. Digital phenotyping sensors, 'omics' and genomics in enhanced sustainability (G/PLF, T)
44. Genetics of food quality (G, T)
45. Indicators, hi-tech solutions, and tools to effectively manage cattle (C, T)
46. Viable future dairy farming systems and products from production, feeding, environmental and consumer viewpoint, Part 1 (C, P)
47. Nutrition management to reduce methane emissions and environmental impact, Part 2 (N, T)
48. Horse genetics and genomics (H, BU)
49. Nutrition in health and welfare of ruminants (N/H+W, T)
50. Sustainable solutions to support and sustain gut health in monogastric livestock (with project MONOGUTHEALTH), Part 1 (P, P)
51. Genetic progress vs animal welfare? (H+W/G/FABRE-TP, C)
52. Redesigning the trajectory: the contribution of research to the development of resilient Livestock Farming Systems and their role in climate change and biodiversity (LFS, T)
53. Insect genetics, reproduction, physiology and behaviour (I, T)
54. Sustainable sheep and goat high-yield production systems: Management, nutrition, mechanization, health, and welfare aspects (S+G, T)
55. Host physiology/genetics and microbiome interactions – The holobiont concept (Ph/G, T)
56. PLF for health, behaviour and welfare, Part 1 (PLF/H+W, T)
Poster session II 13:30 - 14:30

Tuesday Sept 3rd 14.30 – 18.00
57. Socio-economic approaches to address the contemporary issues of the horse industry (H, BU)
58. The role of breeding and genomics in the sustainable transformation of the livestock sector (G/ANRWG, WG)
59. Milk properties for the valorization of dairy (by-products) manufacturing (C/DASA, T)
60. Viable future dairy farming systems and products from production, feeding, environmental and consumer viewpoint Part 2 (C, P)
61. Advances in fish nutrition (N, T)
62. Feeding for improving the nutritional, safety and organoleptic characteristics of animal-derived foods (N, T)
63. Improving animal welfare by optimising nutrition/feeding behaviour, Part 1 (H+W/N, T)
64. Sustainable solutions to support and sustain gut health in monogastric livestock (with project MONOGUTHEALTH), Part 2 (P, P)
65. PLF for health, behaviour and welfare, Part 2 (H+W/PLF, T)
66. The current and future role of pasture production systems in the mitigation of and adaptation to climate change impacts in livestock farming systems (LFS, T)
67. Innovative insect applications and technologies (I, T)
68. Small ruminant health and welfare aspects (S+G/H+W, T)
69. Epigenetics, adaptation and intergenerational transmission (Ph/G, T)
70. RESALIVE: (renewable) energy for livestock, incl. free communications on energy and sensors for thermal comfort of livestock (PLF, P)

Wednesday Sept 4th 8.30 – 12.30
71. Genetic evaluations: new methods, new species, new proxies (G, BU) Genetics Commission Business Meeting
72. Methods in prediction of genetic merit and assessment of genetic diversity (G, BU)
73. Targeting ecosystem services provision by grasslands and protein self-sufficiency in cattle production (C, T) Cattle Commission Business Meeting
74. From horse welfare to social license to operate (H, T) Horse Commission Business Meeting
75. Advances in non-ruminant nutrition, Part 2 (N, T) Nutrition Commission Business Meeting
76. Advances in ruminant nutrition, Part 2 (N, T)
77. Improving animal welfare by optimising nutrition/feeding behaviour, Part 2 (H+W/N, T)
78. Collaboration in experimental research for sustainable pig production (with PIGWEB) (P, P) Pig Commission Business Meeting
79. Welfare issues for small ruminants (H+W/S+G, EC) H+W Commission Business Meeting
80. Technologies for GHG emission mitigation on farm: options, opportunities and challenges (LFS, T) LFS Commission Business Meeting
81. Safety, sustainability and welfare in the insect (I, T) Insect Commission Business Meeting
82. Optimization of pasture forage and by-product resources to improve sheep and goat production (S+G, T) Sheep + Goat Commission Business Meeting
83. Early life nutrition and its latent impact on growth, lactational and reproductive physiology (Ph, I) Physiology Commission Business Meeting
84. PLF systems to face climate change and increase sustainability (PLF, T) PLF Commission Business Meeting

Wednesday Sept 4th 14.00 – 18.00
85. Genetics of novel health and welfare traits (G/H+W, T)
86. Tailored housing and management strategies from incubation to slaughter house, for poultry (P, WG)
87. Dairy herd management (C, EC)
88. How the dairy sector copes with EU-Green deal (C, T)
89. Free communications in animal nutrition (N, BU)
90. Nutrition and feeding in the circular economy (N, T)
91. Young EAAP session. Project writing: tools, opportunities and experiences (AII, EC)
92. Good practices in experimental research for sustainable pig production (with PIGWEB) (P, P)
93. Preventive approaches to livestock diseases to reduce drug resistance (H+W, T)
94. Living labs and demonstration farms: approaches to improve sustainability of LFS globally (LFS, T)
95. Insects as food & feed (I/PWG, T)
96. Optimization of technical, economic, and environmental efficiency in sheep and goat production systems (S+G, T)
97. Biological mechanisms regulating inflammatory and energy metabolism in livestock species (Ph, T)
98. Nutrition in health and welfare in monogastric animals (N/H+W, T)

# Program → horses

## ■ 4 full sessions

- S 57 Socio-economic approaches to address the contemporary issues of the horse industry (H; B)
- S 7 Emerging practices and tools in horse production (H; B)
- S 28 Livestock phenomics, incl. free communications (PLF/G, P)
- S 74 From horse welfare to social license to operate (H; T)
- S 48 **Horse genetics and genomics** (H; B) – 23 papers

## ■ 62 + 2 accepted abstracts

→ 49 + 1 theatre presentations plus 13 + 1 posters

figures of EAAP 2023:  
50 accepted abstracts  
(36 theatre presentations, 14 posters)

≈ **global challenges of the livestock sector** affecting horse keeping, equestrian sport, ...  
**with importance of breeding and genomic tools for sustainable solutions**

Organizing study commission(s): H = horses, N = nutrition, H+W = health and welfare, ...;

Session types: T = theme session (key topics in animal science), B = bottom-up (free communications), ...

# Targets of equine research

- characterization and development of the equine sector
  - challenges (professional knowledge, labor and resources)
  - demands, expectations and best practices
- new responsibility dimensions, new approaches / tools in 'classical' contexts
  - management and breeding; animal health and welfare
  - genetic diversity
  - balanced and successful breeding programs

contributions to trust in the sector  
(social license to operate)

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contributions to trust in the sector  
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## ➤ general findings:

- holistic view rather than sector-specific solutions
- importance of information and knowledge transfer
- modern technology supporting sustainable development

possible gap to bridge  
(individual studbooks,  
WBFSH, EAAP)

# Important results (breeding)

- further support of the value of linear profiling for sport horse breeding
  - early life jumping traits (ELJ) as early predictors of show jumping performance (SJ)
    - optimization of trait definition (index; free jumping, jumping under saddle) and modelling in Belgian WB
    - genetic parameters implying high efficiency of indirect selection ( $h_{ELJ}^2 = 0.14 - 0.25$ ,  $r_{g_{ELJ-SJ}} = 0.52 - 0.75$ )
  - discipline-specific sets of linear traits to select for sport performance of riding horses
    - summarizing performance traits for validation of early available selection criteria in German WB (target traits: proportion of progeny in sports, highest level achieved by progeny)
    - sets of linear traits (foals, adult horses) for dressage (D; gaits) and show jumping (J; canter, jumping)
    - genetic parameters implying valuable support of selection decisions ( $r_g = 0.4 - 0.6$ ) for both D and J

## ➤ specific findings:

- **benefits of refined phenotyping incl. routine linear description**
- potential of genomic data in breeding programs for sport horses
- ongoing development of the genomic toolset based on SNP genotyping



valuable engagement  
for linear profiling  
(individual studbooks)

# Important results (breeding) II

- further support of the value of linear profiling for sport horse breeding
  - examples of benefit of horse breeding through integration of genomic tools
    - improved understanding of the genetic background of traits
      - traits derived from traditional scoring and linear description in Swedish WB
      - genome-wide association study indicating genes potentially relevant for functionality and performance
- 
- genetic variants proposed as risk factors for muscle integrity myopathy (MIM, formerly 'PSSM2') and estimated breeding values for sport performance in dressage and show jumping in German WB
  - some indications of favorable performance potential regarding young horse classes in carriers (P2, P4, P8)

## ➤ specific findings:

- **benefits of refined phenotyping incl. routine linear description**
- **potential of genomic data in breeding programs for sport horses**
- ongoing development of the genomic toolset based on SNP genotyping

valuable investments in new laboratory testing routines (SNPs; individual studbooks)

# Important results (breeding) III

- further support of the value of linear profiling for sport horse breeding
- examples of benefit of horse breeding through integration of genomic tools
  - improved understanding of the genetic background of traits
  - insights in population structure, genetic diversity and its development via 'genetic fingerprint'
    - objective measures of genetic diversity, relevance of historical vs. recent inbreeding, ...
    - parentage verification, similarities within and across breeds, signatures of selection
    - new framework for population monitoring and management (balanced mating decisions)
      - implying improved conditions for sustainable development of breeds (any size from very small to large)

## ➤ specific findings:

- **benefits of refined phenotyping incl. routine linear description**
- **potential of genomic data in breeding programs for sport horses**
- **ongoing development of the genomic toolset based on SNP genotyping**

valuable investments  
in new laboratory  
testing routines (SNPs;  
individual studbooks)

# Further activities

## ■ International Horse Genome Workshop

on May 12-15, 2024, in Caen, France

- only actively contributing participants (application for invitations)
  - session topics:
    - equine evolution, breed development and management
    - functional genomics, epigenetics and reproduction
    - genomics of performances and welfare
    - genomics of equine diseases
  - 30 theatre presentations, 64 posters; workshops
- strength of the equine scientific community ↑, support and promotion of equine genomic research (current and future)

May 12<sup>th</sup> - 15<sup>th</sup>, 2024



Dorothy Russell Havemeyer  
14th International Horse Genome Workshop  
Caen, Normandy, France





# Further activities II

## ■ International Workshop on Linear Profiling (IWSLP)

- intended continuation of the workshop series supported by EAAP-HC and WBFSh
- linear profiling in the Warmblood horse and beyond
- workshop material and reports of previous events found on <https://www.equinephenotypes.org/>
- 8<sup>th</sup> International Workshop on Linear Profiling
  - originally planned for spring 2024 (digital format)
  - new date to be fixed (end of 2024 / early 2025)
  - suggestions for focus topic are welcome

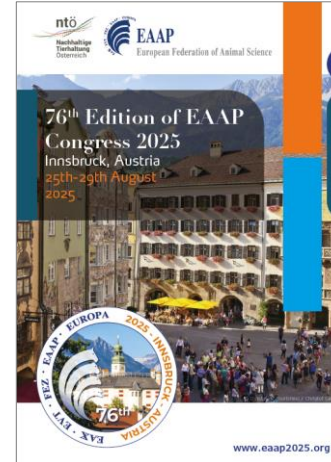
➤ contribution to improved phenotyping of horses together with continued, collaborative advancement of SNP technology and genomic tools as investment in the future of sport horse breeding



Participants of the 7<sup>th</sup> IWSLP on 29<sup>th</sup> - 30<sup>th</sup> March 2023 in Grebin / Plön, Germany

# Further activities → EAAP

- monthly webinars
- one-day-workshops, industry sessions and project sessions at the EAAP annual meetings
- **possible synergistic activities** (different format) **of EAAP HC with WBFSH**



future meetings:  
 2025 **Innsbruck**, Austria  
 2026 **Hamburg**, Germany  
 2027 **Dublin**, Ireland  
 2028 **Jerusalem**, Israel



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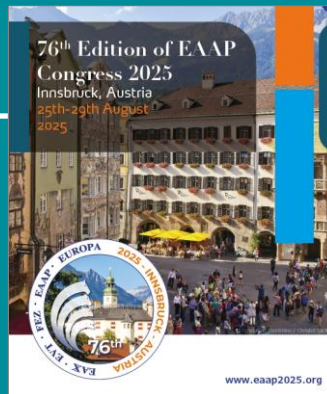
phone: +49-4231-955623 or +49-176-60931357

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Heinrich-Schroeder-Weg 1, 27283 Verden, Germany

➤ possible synergistic activities  
of EAAP HC with WBFSh

*Thank you!*



8<sup>th</sup> Internat. Workshop on Linear Profiling  
in the Warmblood Horse (IWSLP)  
– late 2024 / early 2025; focus topic to be fixed

