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# Official Conference Schedule

# Messages

## A message from the Organizer

For millenia, draft animals played a key role in the survival of many cultures. Even today, draft animals still secure the livelihood of millions of people around the globe. Be it in transportation, agriculture or forestry: draft animals can offer sustainable, ecofriendly and economically valuable ways of land-use. Nevertheless, there are a lot of challenges, ranging from the pressure of high profit markets or politics to animal welfare, breeding and harnessing. The total number of draft animals is universally declining. In 2021, our international and virtual conference will seek to address these challenges.

Experts from around the world will discuss the history, preservation, education and future of draft animals.

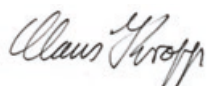
The conference participation is free of charge and designed to enable deep networking on a global scale.

Please subscribe to our conference newsletter ([draftanimals2021@gmail.com](mailto:draftanimals2021@gmail.com)) and register here: <https://www.kloster-lorsch.de/en/international-draft-animal-conference> (International Draft Animal Conference - UNESCO WELTERBE)

Our official conference trailer is available here:

<https://youtube.com/watch?v=TPbbu1XKvJg> („Draft Animals in the Past, Present and Future“)

**I would be happy to welcome you all on May 8-9th!**



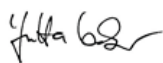
**Claus Kropp** Conference Organizer and Manager of the Lauresham Laboratory for Experimental Archaeology (DE)

## Greeting words from the UNESCO Global Geopark Bergstraße-Odenwald

The Geo-Nature Park Bergstrasse-Odenwald preserves and presents the region's heritage - from the many millions of years of the earth's history to the ever-changing landscape and the cultural space that we humans have shaped.

Our common goals as part of the global UNESCO family also connect us regionally, so I am pleased that the Geo-Nature Park is also participating as a partner and supporter of the international conference "Draft Animals in the Past, Present and Future". In this way, we are making a joint contribution to sustainable future development, the preservation of traditions and to cooperation across regional and national borders.

At the same time, Geoparks within the worldwide UNESCO network are invited to provide examples from their own regions to the digital archive, which is also being assembled at present – this archive is a valuable document of how humans and animals can work and function in harmony with nature.



**Jutta Weber** Manager of the Bergstrasse-Odenwald Geo-Nature Park

UNESCO Geopark Bergstraße-Odenwald



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## Session 1 · Introduction

Saturday, May 8th · 2 PM – 3 PM

Session Chair: **Drew Conroy**

Live discussions

**Claus Kropp** (Germany)

**Welcome Address and Introduction**



### Keynotes

**Paul Starkey** (England)

**Draft Animals in the World**



The presentation considers draft animal uses around the world with geographical and historical perspectives and diverse operations. In various world regions and at different times, domesticated animals such as cattle, buffaloes, yaks, horses, donkeys, elephants, camels, llamas, goats, reindeer and dogs have been used as transport animals (packing, pulling sledges or carts and/or riding).

Draft animals have been important for soil tillage, and can be used for planting, harvesting and associated agricultural processes (irrigation, threshing, milling, logging). With photos from over 100 countries, some of the many options for yoking, harnessing and combining work animals are illustrated.

There have been major changes in animal power use in the past 150 years, with increasing motorisation worldwide but also some expansion in the areas of animal use. Motors have a strong comparative advantage over animals for rotary movements (e.g. milling and irrigation), but less so for steady pulling, intermittent short-distance transport and manoeuvrability in constrained or difficult environments. People continue to use or adopt animal power if they see benefits (labour-saving, environmental, ethical) and there is a supportive environment. They stop using draft animals if affordable motorised alternatives are available, they lack labour and/or the prevailing environment is unsupportive.



## Session 1 · Introduction

Saturday, May 8th · 2 PM – 3 PM

Session Chair: **Drew Conroy**

Live discussions

**Bertha Mudamburi** (Namibia)

**Draft animal issues, constraints and opportunities in Africa**



Most African smallholder farmers rely on manual labour or draft animals. Tractorisation works for large-scale farms but is economically and logistically problematic for smallholders. In Ethiopia, the ancient maresha plough is still widely used with oxen, as are pack donkeys. Elsewhere in sub-Saharan Africa, animal traction was introduced in colonial times, with ox ploughs and carts in many areas and donkeys and horses in drier and highland zones.

Cattle are multipurpose - providing work, milk, hides, manure and lobola payments. From 1950-2000, the range of donkeys expanded, and they were increasingly used for transport and tillage, partly as theft risk was low. This changed from 2000, when Chinese demand for ejiao (donkey gelatin) affected donkey values.

Equid transport is increasingly replaced by motorcycles and three-wheelers. Through many influences (films, media, urbanisation, modernisation), animal traction has negative, backward connotations. It is declining with diminishing support services, few political leaders and minimal support from development agencies. Experience from Namibia suggests many university students see draft animals as relevant, available, affordable, improving smallholder farmers' timeliness and workload through environmentally-friendly tillage and transport.

Animal traction in Africa needs leaders, political support and relevant investment to ensure its continuity and development with a critical mass of users and support services.



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## Session 2 · Historical Perspectives

Saturday, May 8th · 3:15 PM – 5:45 PM

Session Chair: **Claus Kropp**

Live discussions

**Eva Rosenstock** (Germany)

**Speeding up: animal traction and the invention of the revolute joint  
ca. 3000 BCE**



Four decades after Andrew Sherratt's Secondary Products Revolution, there is increasing evidence that animal traction was used well before the turn from the 4<sup>th</sup> to the 3<sup>rd</sup> millennium BCE. The lack of evidence for wheels and in fact for any kind of technical joint, however, suggests activities such as timber logging, the use of sledges or travois-like devices or roller bearings.

As our own experiments show, high friction or high human work input made such early traction likely rather slow. In the 2<sup>nd</sup> half of the 4<sup>th</sup> millennium, however, the revolute joint as the first moveable connection known in human history enabled the development of wheeled vehicles. Carts and wagons significantly sped up animal traction and, by the 2<sup>nd</sup> millennium BCE, allowed for the transfer of this technological package from cattle to equids, creating the separation between cattle-based heavy draught and horse-based light traction that prevailed well into historic times.



## Session 2 · Historical Perspectives

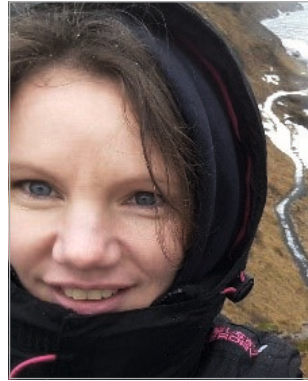
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Live discussions

**Matty Holmes and Richard Thomas** (England)

**„...in winter, plough“: zooarchaeological evidence for the changing role of draught cattle and horses in medieval England AD 400-1400**



Cattle were the tractors of medieval England and provided power essential for agricultural production, yet horses were not widely used for draught until after AD 1250. Evidence for the use of cattle and horses for draught purposes in England between AD 400 and 1400 will be presented. Findings are based on zooarchaeological analysis of the animal economy and pathological and sub-pathological changes to cattle feet, alongside documentary evidence for the use of cattle and horses for traction.



## Session 2 · Historical Perspectives

Saturday, May 8th · 3:15 PM – 5:45 PM

Session Chair: **Claus Kropp**

Live discussions

**Bob Powell** (Scotland)

**The Scottish Horsemen's Society: cult and protectionist organization**



By the later 1700s encouragement from such as the Highland & Agricultural Society of Scotland, accelerated improvement in Scottish agriculture. Land often cultivated in a subsistence fashion by communities of tenants in "Townships" was enclosed and formal farms created.

Best practice was further promoted by 'Farmer's Societies' which included changing from oxen to horses, improved implements, particularly the plough, and the rise of the employed 'farm servant'. The latter gave further rise to a new specialist group of skilled employees, the farm horsemen. Relating to the long established, medieval 'Trades' such as Masons, Carpenters etc., the horsemen particularly in the main Scottish arable areas, created a protectionist organisation, the 'Horsemen's Society', a brotherhood tantamount to a trade union.

With eminently practical principles, the Society nonetheless based its organisation on 'secret' Masonic practice and ritual. That led to the Society being viewed by outsiders as a cult associated with secrecy and myths but to aspiring horsemen as an essential if they wanted to progress.

The Society in local groups remained strong until the First World War but by then the formal 'Scottish Agricultural Farm Servants Union' had been founded. Then following the War, with its effects on agricultural horse numbers, increased mechanisation, and changes in working conditions, practices, and social attitudes. The 'Horsemen's Society' was all but finished by the 1930s. Subsequently the 'Society' was further relegated to mythology rather than a record of its intended aims.





## Session 2 · Historical Perspectives

Saturday, May 8th · 3:15 PM – 5:45 PM

Session Chair: **Claus Kropp**

Live discussions

**George Ellenberg** (United States of America)

### **The Rise and Decline of the Mule in the American South**



Between 1850 and 1950, mules were the standard work animal in the American South. Mules are hybrid animals, the cross between a jack and a mare. Although not used widely in the southern colonies before the American Revolution, by the American Civil War mules had become the predominant draft animal in the American South. Planters adopted mules as uniquely suited to plantation, slave-based agriculture. In the post-Civil War South, mule use among black and white tenant farmers was almost universal.

During the first half of the 20th century, mules remained the key draft animal in the region. After 1950, mules disappeared in the face of technological and societal changes such as the development of a mechanical cotton picker. An important debate developed between tractor and draft animal proponents in the 1920s and 1930s. Each side asserted that its form of farm power was the best for the farmer and the nation.

Mules were not only work animals. As an integral part of the region's social fabric, the mule played several roles at once in the South - draft animal, medium of exchange, and cultural symbol. In 1850, the hybrid animal symbolized innovation, but by 1950 it stood for backwardness, inefficiency, and poverty.



## Session 2 · Historical Perspectives

Saturday, May 8th · 3:15 PM – 5:45 PM

Session Chair: **Claus Kropp**

Live discussions

**Cozette Griffin-Kremer** (France)

**Eye-to-eye with animal draft in France, a case study in a broader ecosystem**



France is a country with a lively draft animal scene that includes use of animal power in real livelihoods such as farming, market gardening, transport, logging, the tourism industry and much more. This is all in a global context, so we will look at how the very local fits into the wider picture with a sampling of the actors and the stakes involved.

There are details about the people who network to bring draft animal users together, communicate with the public, the places they come to meet together, with an emphasis on working cattle.

Animal draft supposes a whole matrix of skills, equipment, learning opportunities, organization and motivation. It survives and can thrive in an ecosystem that recognizes its value and potential.

Perhaps today, we have left one ecosystem behind us and are seeking a new one to carry us forward to wiser relations with the world around us.



## Session 2 · Historical Perspectives

Saturday, May 8th · 3:15 PM – 5:45 PM

Session Chair: **Claus Kropp**

Live discussions

**Marcel Scheidweiler** (Luxembourg)

**The Introduction of Draft Donkey in Burkina Faso, West Africa**



The development of donkeys as draft animals in Burkina Faso starting from 1959: From 1959 to 1969, ten young Luxembourgian volunteers together with state and clerical actors promoted the draft donkey in Burkina Faso. The organization of Luxembourgian Young Farmers returned to the country in 2003, where they have been continuing the promotion of this draft animal and of improved agricultural methods up to now.

Today, 63 years later, the donkey has become a precious animal to help the African farmer to have a better life.



## Session 3 · State of Affairs

Saturday, May 8th · 6 PM – 8 PM

Session Chair: **Claus Kropp**

Live discussions

**Claus Kropp** (Germany)

### Introduction and Virtual Archive of Draft Animals



The virtual archive of draft animals is destined to document the status quo of draft animal usage in the 21<sup>st</sup> century. It additionally follows the goal to showcase that the use of draft animals is no old-fashioned and primitive concept but - depending on the circumstances - can also be economically viable and sustainable.

Through interviews, video-sequences and pictures, the virtual archive seeks to give people the chance to speak out why they use draft animals and what challenges they have to face. The same way of documentation is intended for organizations, associations and museums that are dedicated to the preservation of animal traction and which educate and train people in this craft. In this presentation the use, technical aspects and value of this newly developed database will be explained.



### Virtual World Tour of Draft Animals in the 21<sup>st</sup> century

The Virtual World Tour will give a broad overview on draft animal usage around the globe. Using case studies, presenting different fields of draft animal usage as well as organisations involved in animal welfare, training programmes or the development of better implements, the World Tour hopes to provide a “first view”-impression of the current situation in that respect.



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## Session 4 · Education, Preservation and Innovation

Sunday, May 9th · 2 PM – 5:45 PM

Session Chair: **Pete Watson, João B. Rodrigues, Paul Starkey**

Live discussions

**Barbara Sosič** (Slovenia)

**How museum collections tell us stories about draft animals**



Many signs of agricultural processes can be found in our landscapes, but inevitably, everything created by humankind is perishable and will one day disappear. Therefore, the work done by agricultural museums – tangible and intangible heritage, caught in their collections, is truly very important as it is unique and priceless.

The Slovene Ethnographic Museum in Ljubljana has an interesting livestock collection from 19<sup>th</sup> and 20<sup>th</sup> century, represented mainly by harnesses. The use of draft animals as driving and working forces was still an everyday phenomenon in the 1950s-1960s, right at the time when extensive museum field researches were carried out on the Slovenian countryside. The museum is especially proud of its collection of ox yokes collected during that time. This collection tells stories of strong connections between people and draft animals - about their skills and interdependence.

Knowing our heritage, we can be more sure of a sustainable future, of the challenges and opportunities of safeguarding traditions in which draft animals might play an important role once again. Knowledge, incorporated in museum collections, could be a good example of making the most of our history and the achievements of our ancestors for generations to come.



## Session 4 · Education, Preservation and Innovation

Sunday, May 9th · 2 PM – 5:45 PM

Session Chair: **Pete Watson, João B. Rodrigues, Paul Starkey**

Live discussions

**Julia Hanulewicz** (Poland)

**Draft animals in museum education at the National Museum of Agriculture and Food Industry in Szreniawa (Poland)**



The educational activity of the Museum is mainly for school children and the youth. The Museum's live farm animals are very popular among visitors and we have 12 species of the most important livestock including several endangered native breeds of farm animals, with 4 oxen and 8 horses, harnessed for fieldwork such as plowing, harrowing, as well as transport and treadmill. Oxen have the main role in our educational activities, and in workshops, shows, events and exhibitions (trade fairs).

Our educational activities with horses aim to show their historical significance with all the richness of material (e.g. various types of harness, vehicles, tools, etc.) and immaterial (gestures, vocabulary, customs, etc.) culture.

The use of horses in ecological farming, forestry, or agri-tourism is promoted during events organized with the Polish Association of Keepers and Friends of Workhorses hosted by the Museum in Szreniawa. The association is a member of the European Federation for the Promotion and Use of Workhorses (FECTU).

Our Museum has organized three international conferences (2013, 2016, and 2019) on issues that concern museum professionals related to animal breeding, and the educational and popularization work carried out here.



## Session 4 · Education, Preservation and Innovation

Sunday, May 9th · 2 PM – 5:45 PM

Session Chair: **Pete Watson, João B. Rodrigues, Paul Starkey**

Live discussions

**Claus Kropp** (Germany)

### **The role of draft cattle in (Archaeological) Open-Air Museums and Living History Farms**



Living History Farms, Open-Air Museums as well as Archaeological Open-Air Museums all over the world provide unique windows into the past. Livestock plays a very important role in the daily educational programmes as well as for the farming operations on site. Very often, old heritage breeds are kept and ensure the survival of these old regional varieties of livestock.

Draft cattle in particular can offer ways to connect visitors to our agricultural past ranging from the Neolithics to the first half of the 21<sup>st</sup> century. In many countries, Open-Air Museums have also become valuable institutions for the preservation of knowledge concerning the use of draft cattle but also for the training of both the animals and the people, which seek to work with them.

Based on a survey done in 2020, this presentation aims to determine the present role that these institutions are playing in the different regions of the world and how their specific potential could be used for the future preservation, education and promotion of draft cattle.



## Session 4 · Education, Preservation and Innovation

Sunday, May 9th · 2 PM – 5:45 PM

Session Chair: **Pete Watson, João B. Rodrigues, Paul Starkey**

Live discussions

**Peter Moser** (Switzerland)

### **Hidden modernisers made visible: Working animals in the European rural film production**



Working animals played a crucial role in the emergence of the urban transport systems and the mechanisation of agricultural production from the 18<sup>th</sup> to the middle of the 20<sup>th</sup> century. They were, in other words, agents of modernisation and not, as often perceived and conceptualised, phenomena of a pre-industrial era.

While the presentation gives an overview of the variety of working animals (horses, mules, donkeys, cows, cattle, oxen, breeding bulls and dogs) it also illustrates specific forms of human-animal interactions at work in agriculture. The presentation is based on film material now accessible via the Online-Portal of the European Rural History Film Association: <https://ruralfilms.eu/filmdatabaseOnline>





## Session 4 · Education, Preservation and Innovation

Sunday, May 9th · 2 PM – 5:45 PM

Session Chair: **Pete Watson, João B. Rodrigues, Paul Starkey**

Live discussions

**Drew Conroy** (United States of America)

**Oxen: Status, Uses and Practices in the USA - Encouraging Encouraging a Historic Tradition to Thrive**



Oxen in the United States of America have played an important role since the European settlement in the 17<sup>th</sup> Century. They were used to clear forests, creating open fields in the Eastern and Southern regions before other draft animals. Oxen were later used to commercially log the forests, cultivate fields, harvest and transport crops. Oxen were used to move almost anything else on land including construction materials, military armaments, whole buildings, and the wagons needed to settle the American West. In the 19<sup>th</sup> and 20<sup>th</sup> centuries, oxen were never completely given up for horses, mules, or tractors as seen in many other countries.

Instead, the culture of keeping oxen has been maintained by a small group of farmers and teamsters in the Northeastern states. Their continued presence has been largely due to agricultural fairs and exhibitions where they have been used in competition for the last 170 years. These ox teamsters were surveyed in 2021 as to how many oxen they keep, how they are trained and used, as well as the States where they are kept. Information was also gathered on the gender of teamsters, how people learned to use oxen, and how they access yokes and other related equipment.



## Session 4 · Education, Preservation and Innovation

Sunday, May 9th · 2 PM – 5:45 PM

Session Chair: **Pete Watson, João B. Rodrigues, Paul Starkey**

Live discussions

**Paul Schmit** (Luxembourg)

### **Horsepower- Innovation in small-scale agriculture and gardening**



In December 2020, the LEADER Local Action Group LËTZEBUERG WEST from Luxembourg and LEADER LAG PH from Sweden agreed to carry out together an EU-financed trans-national LEADER project, called “Innovation in small-scale agriculture and gardening”.

The project aims to support European smallholders and market gardeners in their efforts to maintain sustainable food production and to study the social impact and technological feasibility of modern horse-powered agriculture.

The project initiator is the European network ‘Schaff mat Päerd’, an NGO from Luxembourg, with Hälde Hästkraft, a full-time horse entrepreneur from Sweden and the Department of Earth Sciences - Natural Resources and Sustainable Development of Uppsala University as main partners.

Currently, it is planned to start the project in 2023, after a project preparation phase from 2021 to 2022. The target settings and the objectives of the so-called co-designing with bottom-up participation and field laboratories will be explained in this contribution.



## Session 4 · Education, Preservation and Innovation

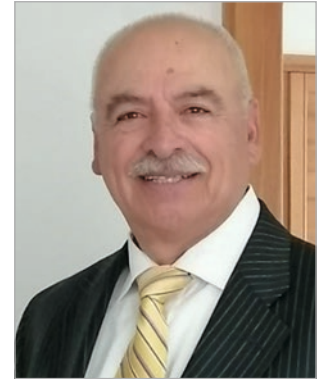
Sunday, May 9th · 2 PM – 5:45 PM

Session Chair: **Pete Watson, João B. Rodrigues, Paul Starkey**

Live discussions

**Hugo Sanhueza** (Colombia)

### **Animal Drawn Biomechanical System for Tillage in the Cundiboyacense Andean Region of Colombia**



The purpose of the study was to determine the viability of using draft horses in the andean (oriental) region of Colombia, from an agricultural, socio-economic, energy-related and environmental perspective. A mechanical prototype named Animal Drawn Biomechanical System (ADBIS), composed of a hitch-cart/work-cart, two draft horses and a chisel plow was used for the study. To register and measure draft force and working depth, an electronic measuring system (datalogger) was designed and built for this study, based on Arduino 1 card complemented by a Polar M400 sport watch with equine heart rate monitor band, to measure heart rate and animal speed during tillage.

The tests were conducted in five experimental units, under different soil conditions and altitudes (a.s.l.), on-farm soil sampling were taken to determine the percentage of soil humidity and also, a non-standard soil shear resistance rod (vane shear tool) was used to determine soil compaction to evaluate animal draft performance and tillage tool efficiency/efficacy. Generally, the ADBIS' lighter weight reduces soil compaction and allows for the employment of soil conservation practices. The results of the study will be presented in the contribution.

The use of systems like ADBIS are a reliable and economical source of animal energy to perform multiple agricultural tasks with a minimal environmental impact and for use by small and medium size farmers in the mountainous andean region of Colombia.



## Session 4 · Education, Preservation and Innovation

Sunday, May 9th · 2 PM – 5:45 PM

Session Chair: **Pete Watson, João B. Rodrigues, Paul Starkey**

Live discussions



**Jo Ballade, André Gimenez and Philippe Lhoste** (France)

**Moderniser la mécanisation en traction animale pour une agriculture paysanne durable –  
Prommata International (P.I.)**

*(French with english subtitles)*

### **Modernising animal traction mechanisation for sustainable peasant agriculture**

Our projects (P.I.) aim to improve the efficiency of the agricultural work of small farmers in developing countries - thanks to the modernisation of their animal traction tools. These two lines of work, one concerning agricultural equipment, and the other concerning draft animals, converge to improve the conditions and efficiency of the work of these farmers.

For the most disadvantaged, the project will usually focus on the donkey species, which is the most affordable. As far as equipment is concerned, we promote a modern tool carrier, the Kassine. This tool, which has proved its worth in many countries where it is made locally, has the advantage of being versatile, adaptable to all types of harness (donkeys, horses, cattle) and easy to use by all members of the farming family.

To ensure this, the blacksmiths, our partners in the South, are trained to make the Kassine according to precise specifications given to them. The farmers and the technicians of their organisations are then trained in the use of this new equipment. However, this training goes beyond the simple use of the equipment, as it is part of an agro-ecological production scheme to ensure the sustainability of agricultural production.

Ultimately, the aim is to improve the working conditions, income and food security of farming families.



## Session 4 · Education, Preservation and Innovation

Sunday, May 9th · 2 PM – 5:45 PM

Session Chair: **Pete Watson, João B. Rodrigues, Paul Starkey**

Live discussions

**Antonio Perronne** (Italy)

**The draft animal power in remote villages: a tool for the achievement of the millennium development goals set up by the United Nations**



In the rural villages of the developing world several hundreds of millions of working animals cooperate with farmers. In comparison with the manual labor, their work increases the productivity of the farmers by three to five times. This makes more food available for the families, more products to be sold and sometimes also provide more clean water. In several research centers, in Asia and in Europe, the generation of electric energy - through the rotary mode operation of an engine moved by a draft animal - has been tested. If properly managed, this can increase the light hours of the villages for students and artisan shops, fighting poverty and increasing education. This can also contribute to ease grain milling and clean water lifting.

However, all these enormous benefits are either ignored or not properly considered by both the governmental and non-governmental international cooperations.

The presentation will emphasise that the draft animal power is not only a heritage of the past but is a precious tool for the next generations of the developing world, to move towards the mechanization.



## Session 4 · Education, Preservation and Innovation

Sunday, May 9th · 2 PM – 5:45 PM

Session Chair: **Pete Watson, João B. Rodrigues, Paul Starkey**

Live discussions

**Raphael Kinoti Magambo and Mohammed Hassan** (Kenya)

**Draft Animal Welfare and its interaction with the UN Sustainable Development Goals**



The world faces global challenges including poverty, conflicts, inequality, climate change and environmental degradation. Africa is no doubt the most affected of countries with estimates indicating that sub-Saharan Africa accounts for about 60 % of the global population living in poverty in 2020. This recognition forms the basis of the UN Sustainable Development Goals (SDGs), designed to achieve a better and more sustainable future for all.

The use of draft animals remains at the centre of development in many developing countries, and their contributions speak to key SDGs such as poverty alleviation, access to clean water, and gender equality and women's empowerment.

For instance, research has shown that nearly 80 % of those who lose their working donkeys become poorer. However, draft animals cannot continue to give their service, if their welfare is compromised. The trinity of sustainable development: humans, environment and animals within the SDGs most clearly outline the permanent links between human wellbeing, animal welfare and environmental sustainability for posterity.

Brooke (Action for working Horses and Donkeys) recognises that animals cannot change their welfare, but people can and the organization seeks to transform the lives of vulnerable working horses, donkeys and mules around the world. Therefore, it is imperative that there are concerted and collaborative efforts to improve the welfare of animals in order to progress on SDGs.



## Session 5 · Challenges and Perspectives

Sunday, May 9th · 6 PM – 7:30 PM

Session Chair: **Claus Kropp**

Live discussions

**Pit Schlechter and João B. Rodrigues** (FECTU)

**Animal traction in Europe in the XXI century:  
challenges, threats and opportunities**



### Opening Paper

Development is now ruled by economic, environmental and social principles, where a balance is sought between the economic growth of the regions, the improvement of the quality of life, and the creation of a sustainable territory. In a fast changing world, a collective ecological (but also economical) consciousness about the need to reduce the excessive industrialization and motorization, along with a renewed interest in energy has led some societal sectors to consider the reuse of animal traction as a valid modern source of energy. The need of maintaining biodiversity, reducing carbon emissions and consumption of resources, encouraging self-reliance contributes to this trend. This presentation will show how urban and rural sectors are (re)adopting animal traction, and how scientific institutions and NGOs contributed to a significant increase in the development of appropriate technology and transfer of knowledge.

On the other hand, this presentation will illustrate how animal traction is still ignored by decision and policy makers, excluding it from international development strategies, but also how the attitude assumed by organizations committed with “animal rights” tends to systematically depreciate any and all uses of the animals, ignoring the real importance of animal energy, creating a negative perception.



# Virtual Panel Discussion

featuring:



**Phillip Lhoste**  
(Prommata International)



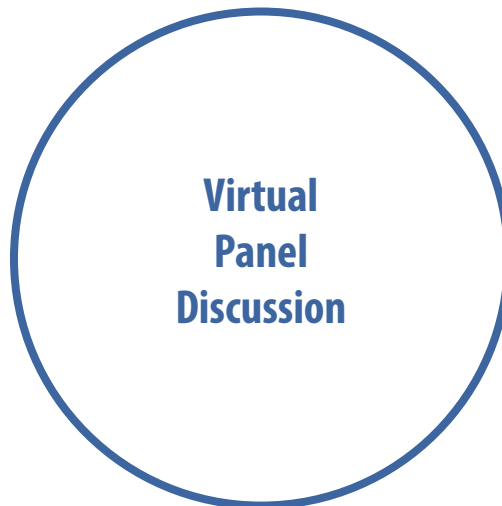
**Bertha Mudamburi**



**João B. Rodrigues**  
(FECTU)



**Drew Conroy**



**Virtual  
Panel  
Discussion**



**Timothy Harrigan**  
(Tillers International)



**Paul Starkey**



**Astrid Masson**





# Concluding Remarks

**Claus Kropp** (Germany)

**Concluding Remarks**



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**Kloster Lorsch**  
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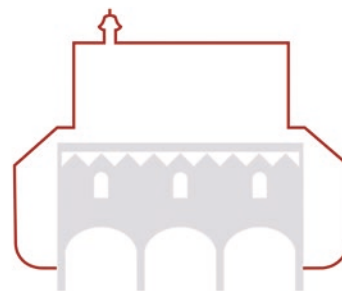
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