



# Challenges in Horse Production

EAAP 2012 Bratislava

Session 13b, Theatre 1

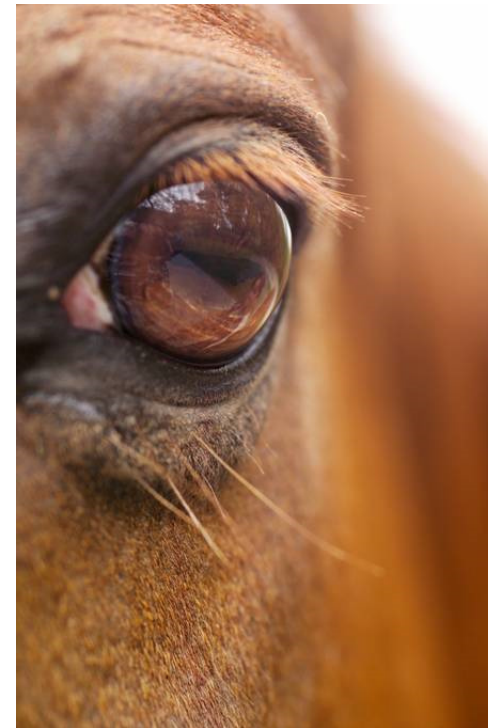
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European State Stud Association (ESSA)



# Content

- Analysis of the equine industry
- Actual challenges and problems in equine production
- Future challenges
- Conclusions



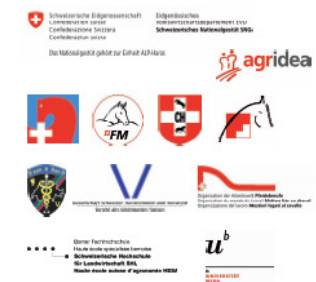


# Analysis of the equine industry



## Some studies...

- D (*IPSOS/ FN, 2001; Jahresbericht FN, 2009*)
- CH (*Observatorium, 2007/9*)
- F (*COST HN, 2008*)



– ..



**IPSOS**

Marktanalyse der FN zum Pferdesport (Kurzfassung fn-press)

[Bestellformular für grüne Pferdekennzeichen als PDF-Datei](#)



# Status Quo (European Horse Network 2010)



- 100 billion euros a year economic impact
- 400 000 full time jobs equivalent provided
- 6 million or more horses in Europe
- 6 million hectares of permanent grassland given over to horse grazing
- A growing sector: the number of horse riders growing by 5% a year
- Weak market for young horses and average quality, decreasing number of coverings



# Factors

- Economy, agriculture
- Ecology, environment, climate
- Globalisation of market, mobility
- Public view, ethics, animal welfare





# Common points faced with...



- increasing interest in the population towards the horse for leisure, sport and therapy use

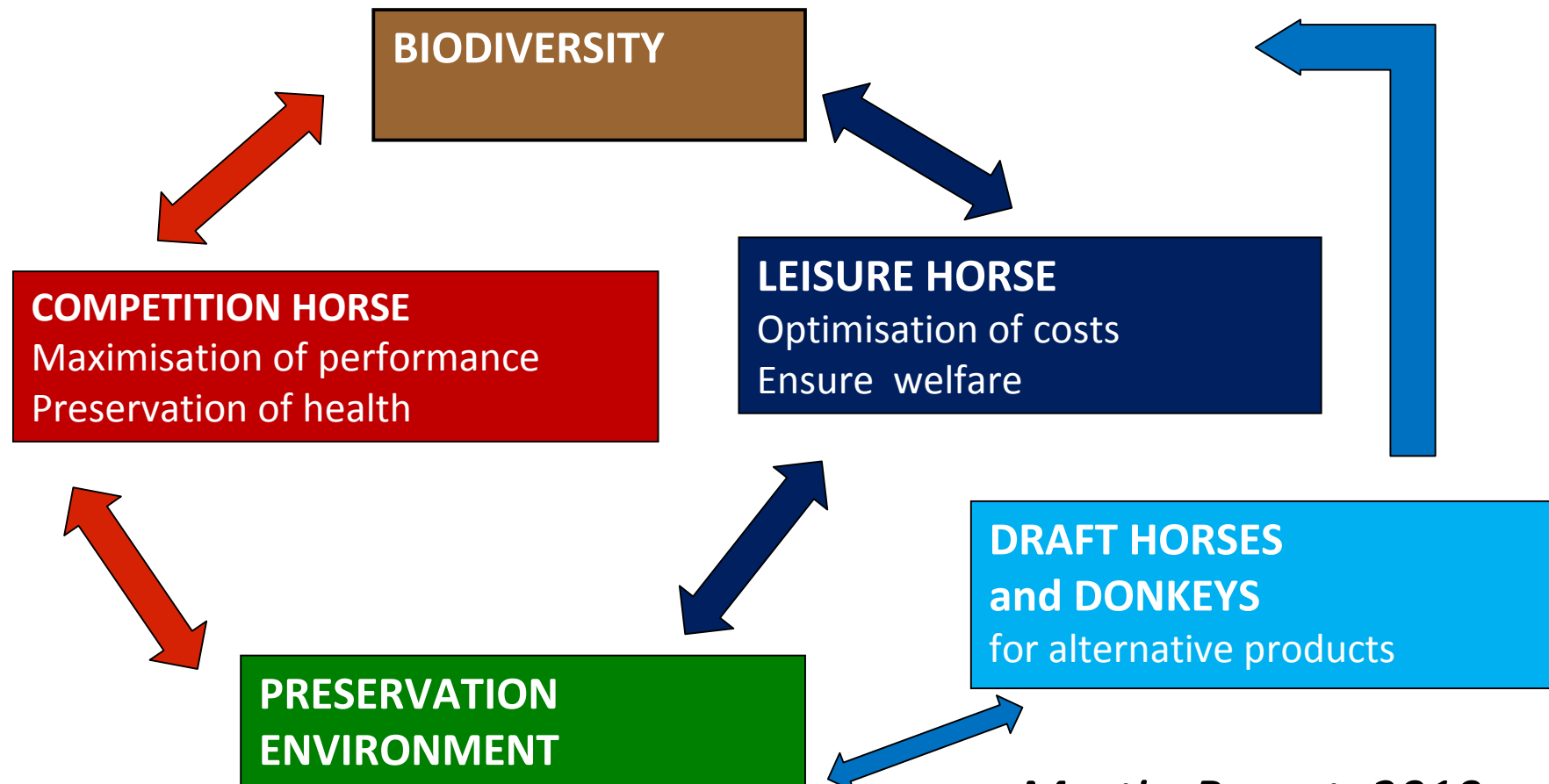
- horse know-how ↓



- increasing feminisation of the horse world
- great change in the social status of the horse
- strong economical impact of the horse industry



# Key challenges for the equine industry



*Martin-Rosset, 2010*




# View of the public

- Distance to nature, poor knowledge
- Critical towards performance
- Sensitive for animal welfare campaigns
- Controversial and emotional discussions


Fühl dich wie ein Pferd.

Stoppen Sie mit uns das Brandzeichen von Pferden!  
Tiere leiden wie wir.



The image shows the back of a woman with long brown hair. On her upper back, there is a large, glowing red burn mark that is shaped like the head of a horse, facing right. Wisps of white smoke are rising from the burn mark. The background is dark and out of focus.

[www.frese-wolff.de](http://www.frese-wolff.de)

 DEUTSCHER TIERSCHUTZBUND E.V.

Für ein neues Tierschutzgesetz  
[www.tierschutzbund.de](http://www.tierschutzbund.de)



# Ethical considerations



= morality of society: right or wrong, good or bad?





# Ethical considerations



A  
Studs

## A Mule Cloned From Fetal Cells by Nuclear Transfer

Gordon L. Woods,<sup>1\*†</sup> Kenneth L. White,<sup>2\*</sup> Dirk K. Vanderwall,<sup>1\*</sup> Guang-Peng Li,<sup>2</sup> Kenneth I. Aston,<sup>2</sup> Thomas D. Bunch,<sup>2</sup> Lora N. Meerdo,<sup>2</sup> Barry J. Pate<sup>2</sup>



Science, 29 may 2003

### brief communications

## A cloned horse born to its dam twin

A birth announcement calls for a rethink on the immunological demands of pregnancy.

Cesare Galli, Irina Lagutina,  
Gabriella Crotti, Silvia Colleoni,  
Paola Turini, Nunzia Ponderato,  
Roberto Duchi, Giovanna Lazzari  
*Laboratorio di Tecnologie della Riproduzione,  
CIZ srl, Istituto Sperimentale Italiano Lazzaro  
Spallanzani, 26100 Cremona, Italy*

Nature, 7 august 2003

Several animal species, including sheep, mice, cattle, goats, rabbits, cats, pigs and, more recently, mules<sup>1</sup> have been reproduced by somatic cell cloning, with the offspring being a genetic copy of the animal donor of the nuclear material used for transfer into an enucleated oocyte. Here we use this technology to clone an adult horse and show that it is possible to establish a viable, full-term pregnancy in which the surrogate mother is also the nuclear donor. The cloned offspring is therefore genetically identical to the mare who carried it, challenging the idea that maternal immunological recognition of fetal antigens

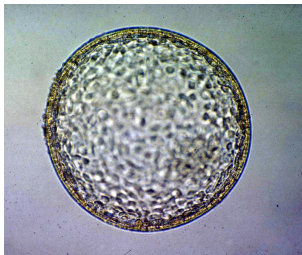
Our cloning procedure was relatively efficient, as one live foal was produced from four pregnancies, although there was high developmental failure from the cleavage stage to blastocyst (8 of 467 and 14 of 286 developed in the male and female cell lines, respectively) and early implantation. This success was aided by advances in assisted reproduction in the horse<sup>2</sup>, particularly at the oocyte-activation stage, when protein synthesis and phosphorylation must both be inhibited<sup>3</sup>, and in the refinement of the zona-free manipulation technique<sup>4,5</sup>.

The remarkable birth of a live foal from its genetically identical recipient is at odds





# Ethical considerations





# Important traits

1. Health
2. Behaviour
3. Performance - Colour and markings
4. Conformation

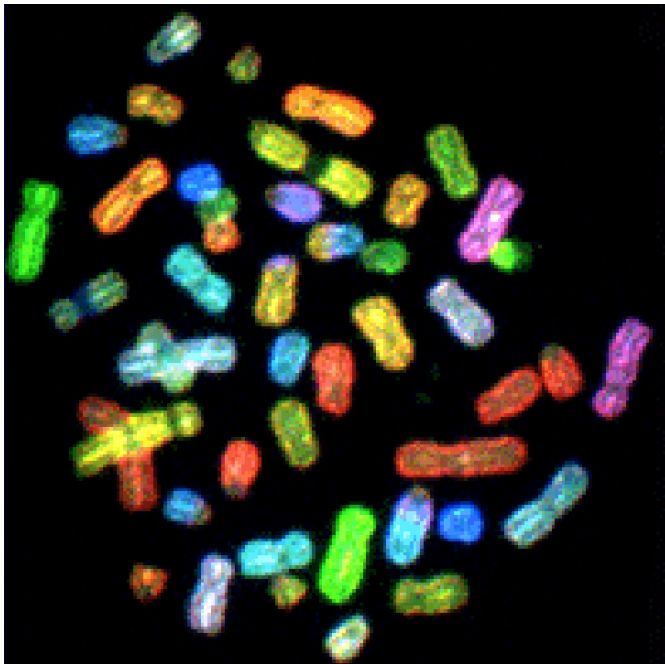
⇒ Objective description of phenotypes

⇒ Ponderation in breeding programs?



# Genetics...

Daily new findings...  
Transfer to practice?





# Conclusion: what do we need?



Holistic views

Transdisciplinary exchange and research

Education concepts

Networking



# Networks?



- FEI, FN
- WBFSH, LIF
- EHN
- ESSA
- EAAP, Interstallion
- Regional Horse Competence Centres
- European riding schools



# Players



Breeders and studs  
Horse keepers

Scientists

Public  
Politics

Riders  
Drivers





Irish National Stud

**Partner studs 2012**  
**32 institutions**  
**in 16 countries**





# ESSA Cooperations & Projects



- Education and Training
- Research network (horse breeding and welfare of the horse)
- Marketing and Tourism
- Lobbying European Law
- Exchange of genetic material, specifically of sport horses and endangered breeds





# Current projects

- Behaviour test for foals  
→ Lipica, Marbach and Avenches
- Embryo transfer program  
→ Marbach and Avenches
- Behaviour test for horses  
→ France and Avenches
- Education  
→ Germany, Vienna and Avenches
- etc.





# Questionnaire

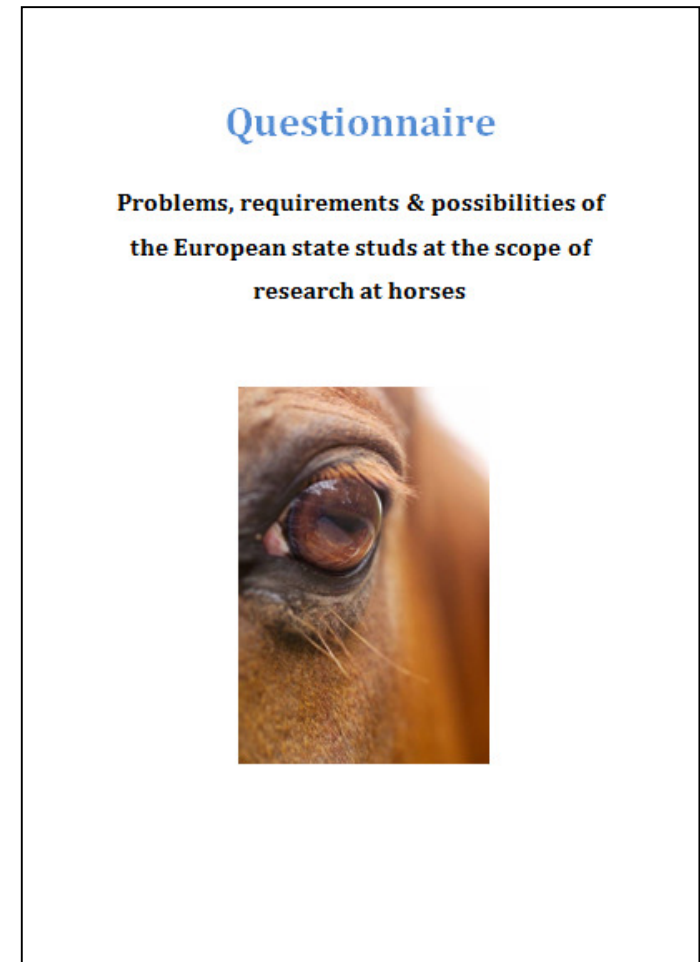


Bachelor thesis Veronika Linsmayer

→ Report September 2012

Objective: ESSA research network

→ “Win-Win”  
for all players







**Cora Cushny 2007**



# Thank you

