

# HOUSING MANAGEMENT DURING THE AFRICAN HORSE SICKNESS OUTBREAK IN THAILAND

Assoc. Prof. Dr Metha Chanda

Veterinary department, Thailand Equestrian Federation

Department of Large Animal and Wildlife Clinical Science, Faculty of Veterinary  
Medicine, Kasetsart University, Kampeang Sean Campus, Nakorn Pathom,  
Thailand



# OUTLINES

- Overview of African horse sickness (AHS) outbreak in Thailand
- Biosecurity measure
- Specific housing protocol in horses in AHS outbreak area
- Impact of housing during the severe outbreak of AHS
- Strategic housing management to preserve the horse welfare

# AFRICAN HORSE SICKNESS (AHS) OUTBREAK IN THAILAND

- Thailand equestrian federation (TEF) secretary's office was noticed by the club member over the unpredictable and sudden death of horses at Nakorn rachasima province.
- Veterinary department of TEF has alerted all club members to stop the movement of horses during that time
- An outbreak of African horse sickness (AHS) was declared in the Nakhon Ratchasima province, Thailand In March 2020, (King et al., 2020; Lu et al., 2020)
- Up to 500 horses have died following the emergence of this deadly disease
- **Serotype 1** of AHSV was identified as the underlying cause of disease outbreak in Thailand



# AFRICAN HORSE SICKNESS (AHS) OUTBREAK IN THAILAND

- ASHV transmission may be prevented by controlling the associated biological vectors
- Horses are forced to house full-time (24 hours a day) in the vector-protected barn fully covered with a **small mesh net (32 squares/inch)**
- Repellent such as **pyrethroid derivative** is also used to deter the midges



Living the net covering facility is the immediate measure for battling the AHS transmission





What have we done to prevent ASH transmission??

# AFRICAN HORSE SICKNESS (AHS) OUTBREAK IN THAILAND

- The small mesh net is available at Pongchiangthong Plastic netting, Kartungban, Samutsakorn, Thailand
- [www.pongchiangthong.net](http://www.pongchiangthong.net), <https://pongchiangthong.yellowpages.co.th>

Select Language ▼ ไทยแลนด์ เยลลี่พองเจา | ใบเสนอราคา 0(0) | เข้าสู่ระบบ |

**พongchieangthong พลาสติกมุ้งตั่ว**  
โรงงานผลิตมุ้งไนล่อน สมุทรสาคร

โรงงานผลิตผ้ามุ้งไนล่อน สมุทรสาคร

หน้าแรก | เกี่ยวกับเรา | แคตตาล็อก | ติดต่อเรา

## พongchieangthong

โรงงานผลิตและจำหน่าย  
มุ้งไนล่อน และ แสตนกรองแสง  
พร้อมบริการจัดส่งทั่วประเทศ

086-664-0637, 034-473901-2, 02-0249641-2

13°38'56.4"N 100°16'27.0"E

# AFRICAN HORSE SICKNESS (AHS) OUTBREAK IN THAILAND

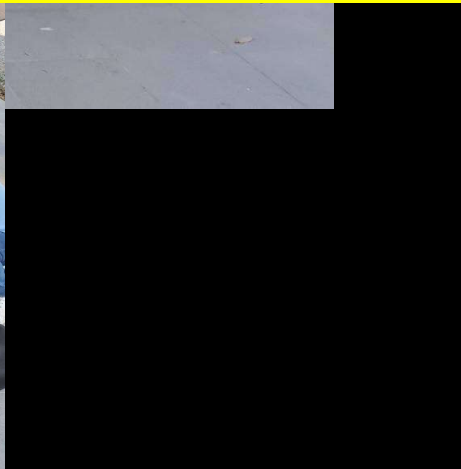
- Although access to the small mesh netting is available.
- Several farmers can't afford to buy this net.
- Up to 2,000 meters length of the net was donated by Dr Harald Link, the president of the Thailand Equestrian Federation (TEF), to those horse farmers at the infected area via the DLD body







TEF officials paid a visit to the local DLD office in Pechaburi province, where the active cases were still reported in 2020



# AFRICAN HORSE SICKNESS (AHS) OUTBREAK IN THAILAND

- Polyvalent AHS vaccination campaign was also launched to combat the disease
- A modified live vaccine containing **serotypes 1,3 and 4** was administered in horses in the outbreak area

The first lot of AHS vaccine was donated by **Mr Phongthep Chiaravanont**, Chairman and Chief Executive Officer of Perfect Companion Group and a vice president of Thailand Equestrian Federation (TEF).





[http://c.files.bbci.co.uk/185A9/production/\\_112835799\\_photo11-6-20105856.jpg](http://c.files.bbci.co.uk/185A9/production/_112835799_photo11-6-20105856.jpg)

Horses were still housed in vector-protected facilities after receiving the vaccination.



<https://taejai.com/media/projects/1778/summernote/2b796fa4-e371-4f30-9b23-b3b55e4a136c.jpg>

**UBP**  
ONDERSTEPORIT  
BIOLOGICAL PRODUCTS

2 Doses

**AFRICAN HORSE SICKNESS** 2 Doses  
VACCINE FOR HORSES, MULES AND DONKEYS  
Reg. No. G 0114 (Act 36/1947) Number: NSR 0536  
DOSAGE: 2 ml subcutaneously  
Storage: 4 °C - 8 °C. See package insert for full instructions.  
Registration holder: Onderstepoort Biological Products SOC Ltd, Co. Reg. No. 2000/027685/06  
Private Bag 007, Onderstepoort, 0110 Tel: +27 (0) 12 522 1500, Fax: +27 (0) 12 522 1591



Insecticide sprayed on the net covering the walking machine (left) and stable (below)





Netting was extended to the showering area of the barn



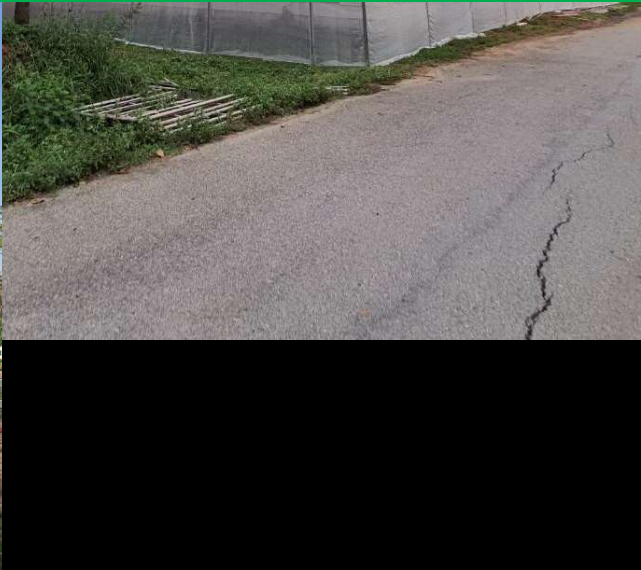
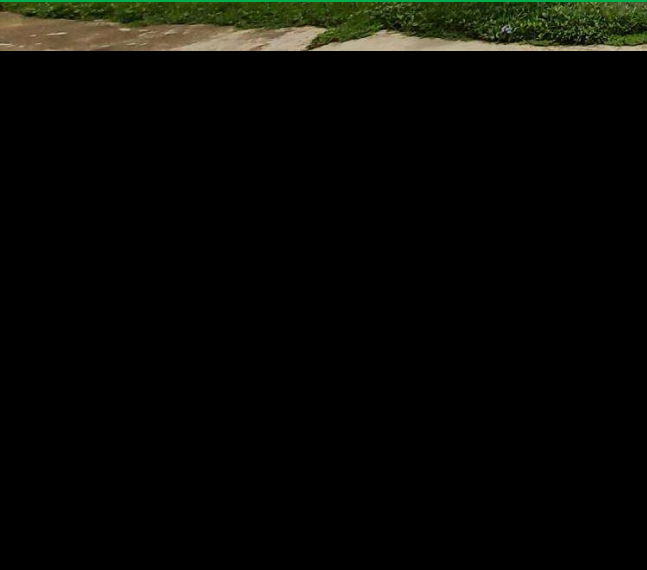


- A year after the outbreak
- The horse was allowed to exercise or temporarily living outside the stable during the day
- Repellent spray must be performed before going out of the vector-protected barn





The vector-protected area was established in some equestrian club





The tunnel connecting the stable and the arena was constructed to build the closed vector-protected system







The horse can exercise in the vector-protected arena





The netting at the entrance gate may be lifted up to, at least in part, increase the ventilation in the barn



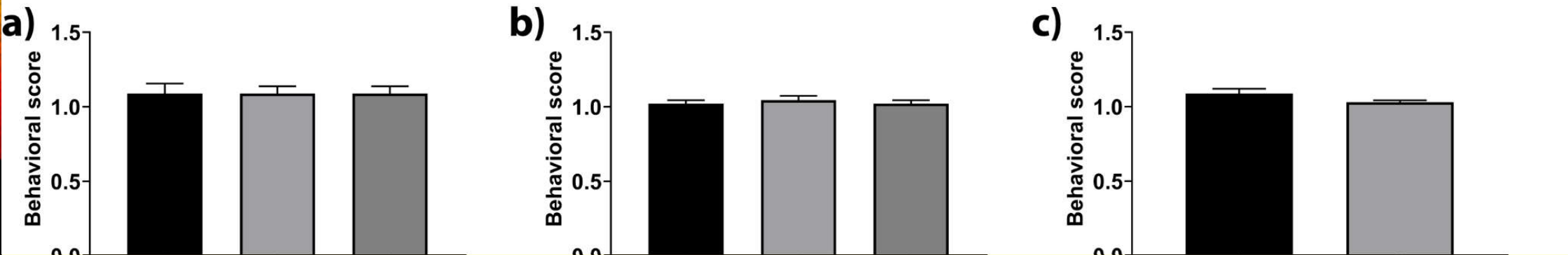


# AFRICAN HORSE SICKNESS (AHS) OUTBREAK IN THAILAND

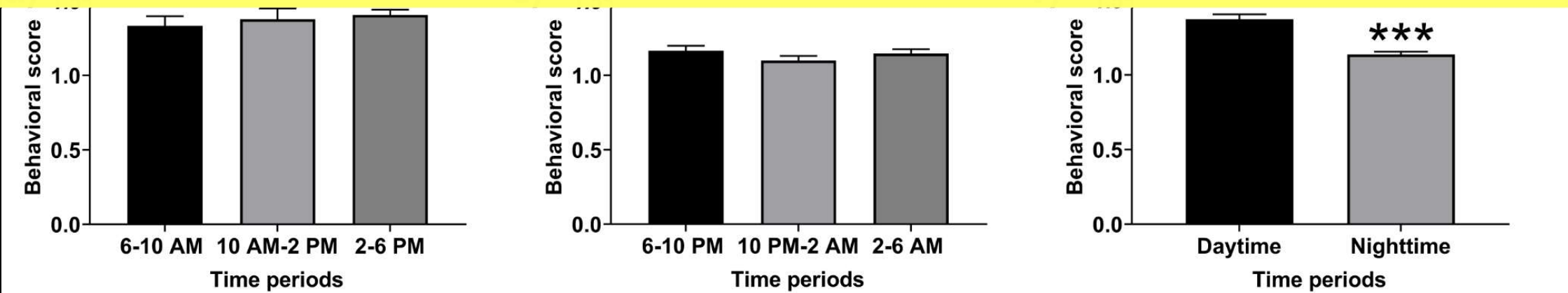
- Indeed, previous reports have indicated that using vector-protected facilities can prevent the introduction of midges (Baker et al., 2015).
- Nevertheless, closed-barn systems also exhibit reduced air ventilation (Webster, Clarke, Madelin, & Wathes, 1987)



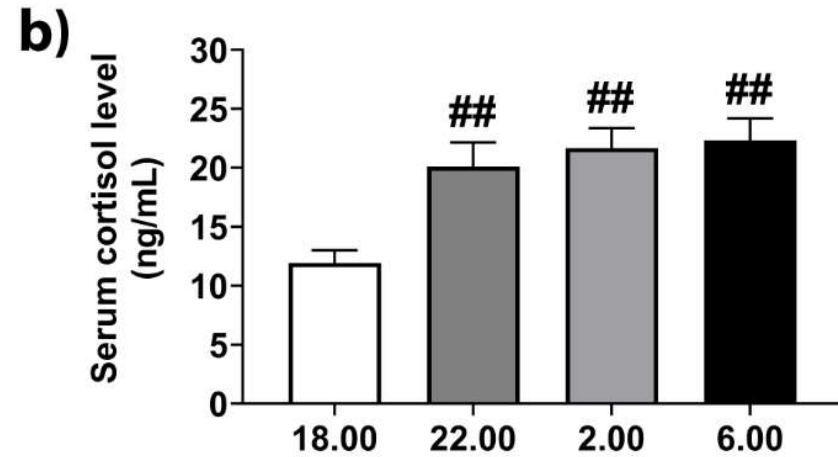
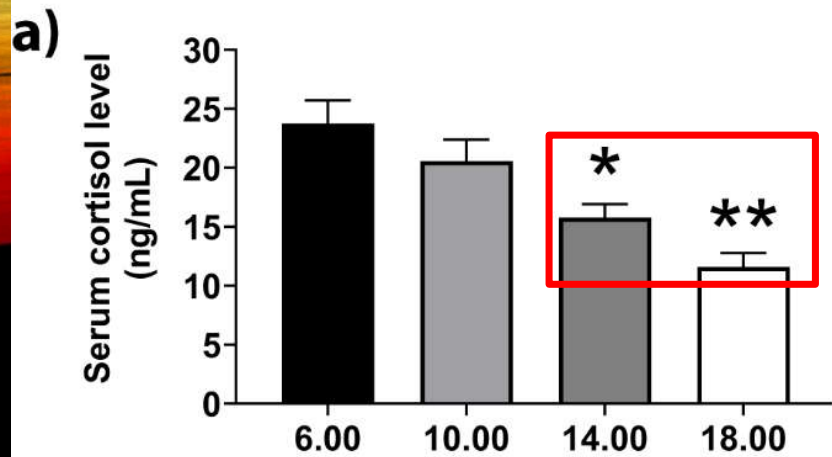
Effect of full-time housing within the vector protected arena  
in horse in the outbreak area



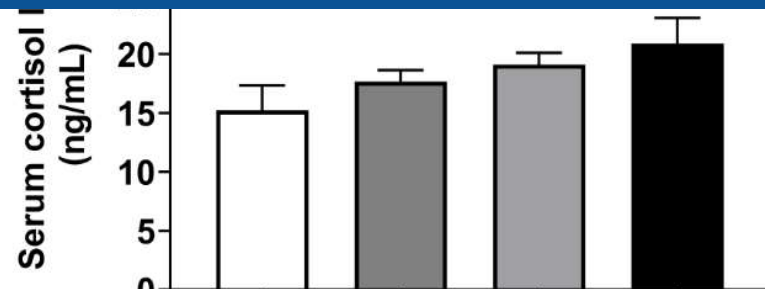
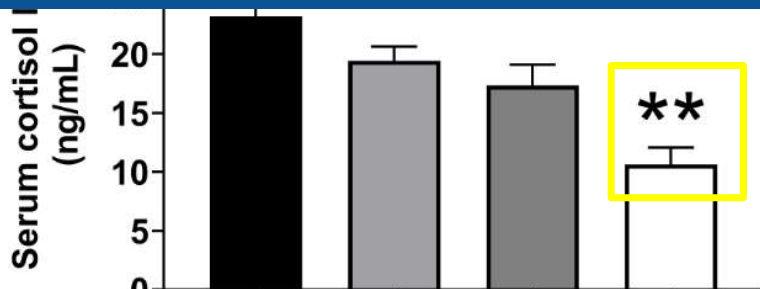
The horse's stress level is higher during the day in the vector-protected arena



Behavioral score during the day and night in conventional barn (a-c) and vector protected barn (d-f)



A decrease in a horse's cortisol level is later in vector-protected barn

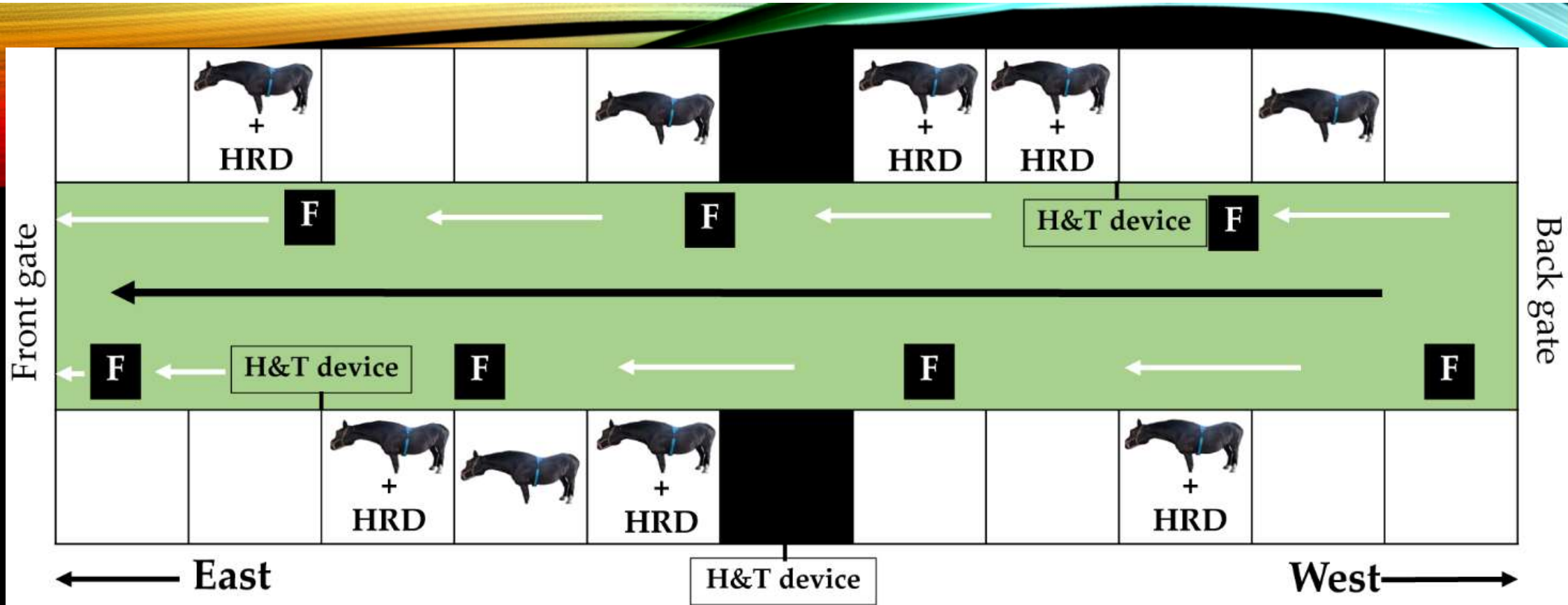


It is summarized that the horse feels less comfort during housing in the vector-protected area

Cortisol release during the day (a) and night (b) in conventional barn and during day (c) and night (d) in vector-protected barn



Strategic housing management to preserve welfare in horses  
in the AHS outbreak area



Strategic ventilation adjustment





Strategic ventilation adjustment

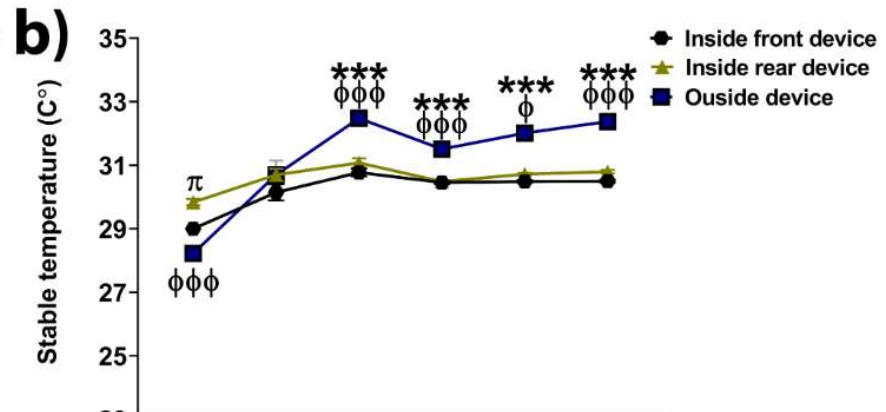
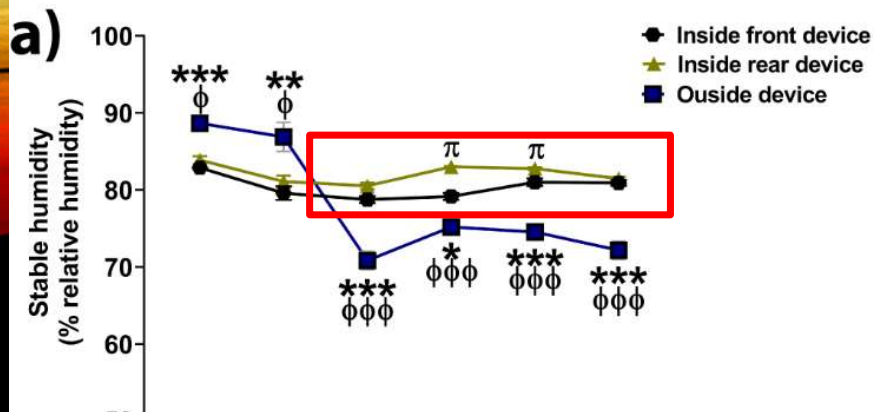
Wind speed inside the net-covered barn with and without ventilation adjustment

Position		Wind speed inside the barn (m s <sup>-1</sup> )	
		(-) ventilation adjustment	(+) ventilation adjustment
Inside front stable		0.2	2.1
Barn corridor	front	0.5	2.3
	middle	0.4	2.5
	rear	0.2	2.5
Inside rear stable		0.3	3.2
<b>Mean ± SEM</b>		0.32 ± 0.06	2.40 ± 0.02***

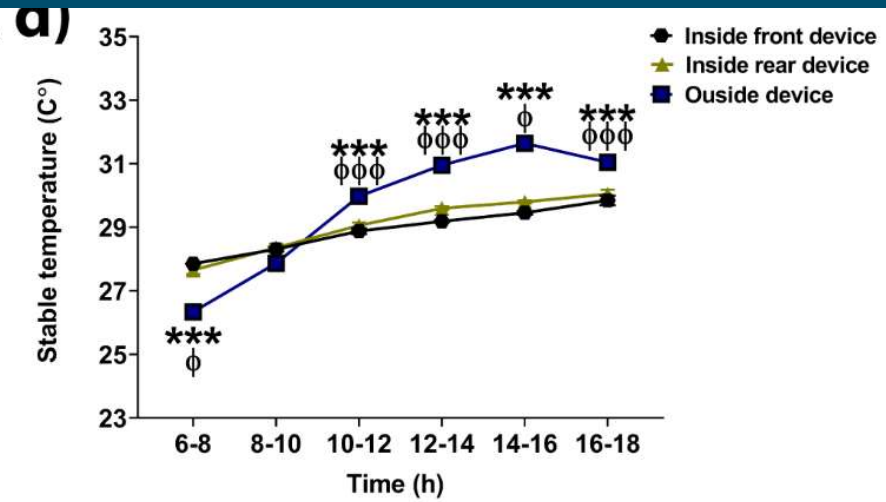
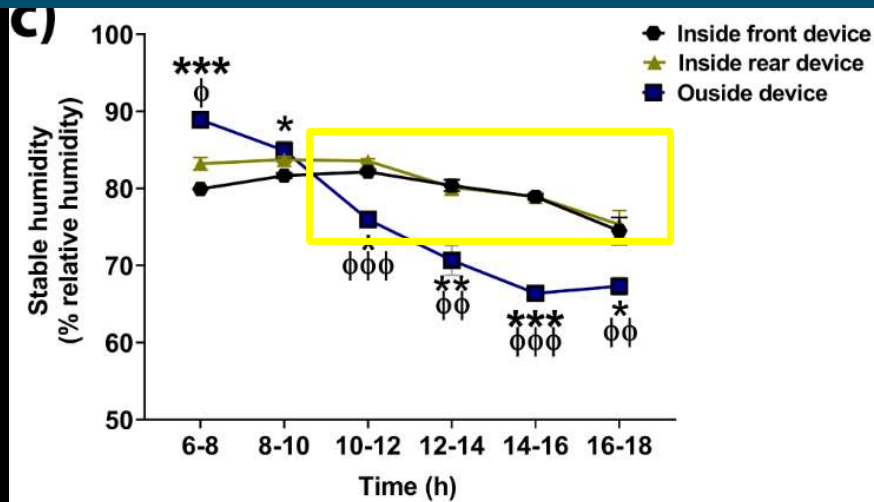
The data were recorded for 10 min at each position.

\*\*\* $P < 0.001$ , significant difference of the values from (-) ventilation adjustment

**The wind speed increases significantly after the ventilation adjustment**

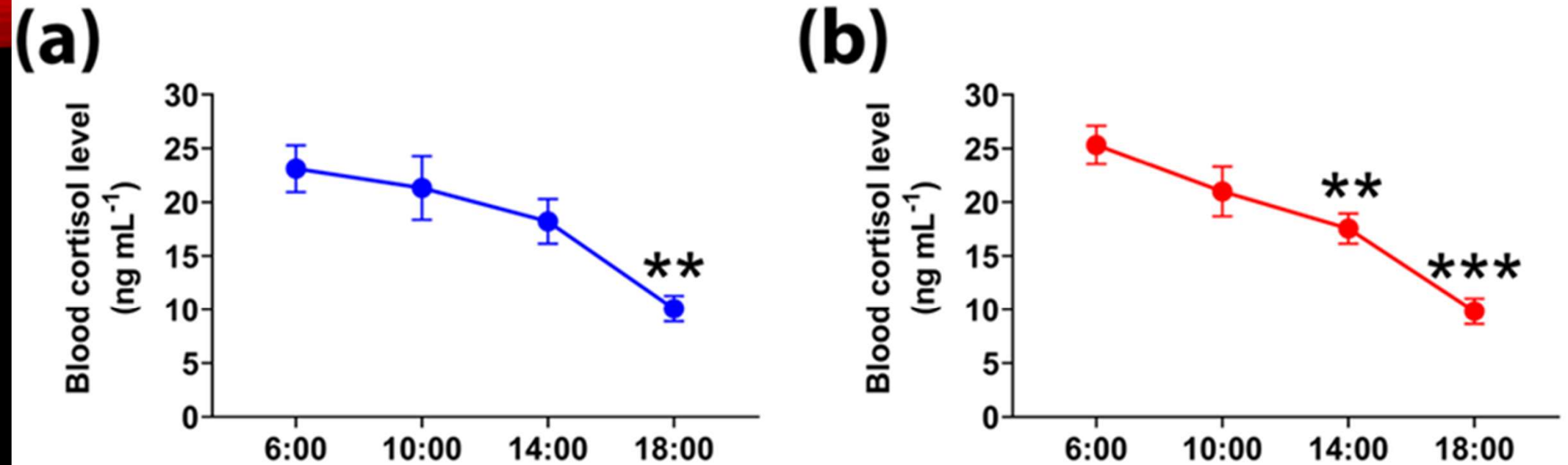


It can be concluded that ventilation adjustment improves internal humidity in the vector-protected barn



Relative humidity and temperature during the day before ventilation adjustment (a and b) and after venti

An earlier decrease in cortisol level was observed after ventilation adjustment



Horses experience less discomfort after ventilation adjustment

<https://www.tandfonline.com/doi/abs/10.1080/10888705.2021.1894147>

Cortisol release in horses housing without ventilation adjustment (a) and with ventilation adjustment (b)

# APPLICATION

As horses under TEF recognition have still been housed in the vector-protected area even after the outbreak was stopped over a year

Using ventilation adjustment improves the horse welfare and reduce the risk of negative consequence, heat stroke, for example

However, they are allowed to do more outdoor exercise and activity during the day

**The mandatory laboratory test negative for the AHS virus still functions for any movement in the TEF equestrian community**



Thank you for your attention